



CONNECTICUT STATE  
DEPARTMENT OF EDUCATION

# **Connecticut Physical Fitness Assessment**

## **Third Generation**

*Test Administrator's Manual*

**2019-20**

*The Third Generation Connecticut Physical Fitness Assessment Test Administrator’s Manual is intended to explain the rationale for the test items selected for inclusion in the fitness assessment battery, provide descriptions of the tests and health-related performance standards, and provide answers to some common questions associated with the use and interpretation of the overall assessment.*

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## 1. Introduction

Physical fitness is a critical element in the development of a healthy and productive adult. As such, it is an important component of Connecticut's overall educational program goals. It is the Connecticut State Department of Education's (CSDE) goal that by the end of Grade 12, students will recognize the importance of and choose to participate regularly in physical activities designed to maintain and enhance healthy lifestyles. The Connecticut Physical Fitness Assessment (CPFA) is evidence of a dedication to the physical development of Connecticut's students, as well as a commitment to focusing on outcomes and specific performance objectives. Physical fitness should be a result of the balance of activities that are provided in the physical education programs at school and continued by family and in other community-based activities. The CPFA should not be the focus of the entire physical education curriculum or program. Rather, the assessment should be a part of the ongoing process of helping children understand and improve and/or maintain their physical health and well-being.

The goals of the assessment program are to:

- provide for continual monitoring of students' fitness levels in targeted grades;
- identify a student's weaknesses and strengths, so that areas in need of improvement can be seen and individual programs can be developed;
- inform students and parents about a student's fitness status; and
- inform schools, districts, and the public about programs focusing on fitness and physical activity in our schools and evaluate their success.

The focus of the *Third Generation* of the CPFA is health-related fitness. The program mirrors options in the President's Challenge Physical Fitness Program and other nationally recognized assessments. Changes to the assessment include improvements that address problems with specific test items and their administration, and reflect the careful research and piloting conducted by the Third Generation Connecticut Physical Fitness Assessment Committee, as well as physical educators from across the state.

Health-related fitness focuses on optimum health and prevents the onset of diseases and problems associated with inactivity. Maintaining an appropriate level of health-related fitness allows a person to:

- reduce the risk of disease and injury;
- work efficiently;
- participate and enjoy physical activity (sports, recreation, leisure); and
- be one's physical best.

## **Third Generation Connecticut Physical Fitness Assessment Committee**

The Department would like to recognize and thank the members of the Third Generation Connecticut Physical Fitness Assessment Committee.

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### Editor's Note:

This manual was initially written in 2009, but was revised by Connecticut State Department of Education (CSDE) staff in 2018. Further updates occurred in the summer of 2019. These changes are detailed in Appendix H.

## 2. History of the Connecticut Physical Fitness Assessment Program 1990-2009

Physical fitness has been, and continues to be, an important component of Connecticut’s overall education program goals. *Challenge for Excellence: Connecticut’s Comprehensive Plan for Elementary, Secondary, Vocational, Career and Adult Education: A Policy Plan – 1991-1995*, adopted by the State Board of Education, states that the learning of lifelong values of physical fitness is a life skill competency. The document also cited, “an increase in the physical fitness of students,” as one of *16 Indicators of Success of the Statewide Educational Goals for Students*. In addition, *Connecticut’s Common Core of Learning* included physical development as part of the major curriculum content, with the expectation that students will understand the lifelong value of physical fitness, and plan and implement a physical fitness program with a variety of conditioning exercises and/or leisure activities.

The goals of the assessment program have been to:

- provide for continual monitoring of students’ fitness levels in targeted grades;
- provide additional test achievement information about students, schools, and districts;
- provide earlier identification of students not meeting a fitness standard; and
- improve instruction as a result of test analysis.

The assessment program was initially developed to provide clear goals for minimum fitness based on standards established by the American Alliance for Health, Physical Education, Recreation and Dance. The test did not provide standards for high levels of fitness, but rather established a minimum level for fitness based on health-related criteria. In addition, the assessment program provided standards established by the Connecticut State Department of Education and physical educators for an “at-risk” fitness level.

In 1990, the Connecticut General Assembly passed Public Act 90-234. With passage of this act, Connecticut joined a growing number of states that report accountability data by school, as well as by district or statewide. Section 10-220(c), of the Connecticut General Statutes requires that each local and regional board of education submit a Strategic School Profile report for each school and for the district as a whole. The profiles were designed to provide information on measures of student needs, school resources, and student and school performance. The primary purposes of the reports were: 1) to operate as an accountability system to inform the public about education outcomes; and 2) to act as a catalyst for promoting school and district improvement.

Student physical fitness performance data were reported on the profile, thus providing an opportunity for physical educators to assess and compare the performance of their students on school, district, and state levels. This also provided an opportunity to review and improve physical education programs.

Health-related standards were developed from national standards for the compendium of physical fitness assessments that are frequently used across the country on, notably, the President’s Challenge and the Physical Best fitness assessment batteries. The original fitness

assessment included sit-and-reach, sit-up, pull-up, one-mile run-walk, and body mass index (BMI) (reporting optional) components.

Pilot studies were conducted in 1996-97 to investigate various alternative assessments, with over 200 physical education teachers across the state participating in the pilot. A committee of experts in physical education and exercise science worked for two years on the revision of the assessment. The review process included a review of national publications and programs across the country. The Physical Fitness Assessment: *Second Generation* was announced in September of 1998. The new version of the CPFA included the one-mile run-walk, partial curl-up, right-angle push-up, modified sit-and-reach, and the BMI (included as a non-reported, required element).

Health-related and challenge standards were developed through the collection of statewide data over the next year. Beginning in fall 2005, a series of forums began inviting comment and discussion from the physical education and exercise science field across Connecticut in a move to review the current state physical fitness assessment program, its purposes, components, administration, and timing, and whether there exists a need for updating or change.

### 3. The Connecticut Physical Fitness Assessment, Third Generation Program 2009-Present

The Third Generation of the Connecticut Physical Fitness Assessment Program (CPFA) was adopted for the 2009-10 school year and thereafter. It includes a variety of health-related physical fitness tests designed to assess muscle strength, muscular endurance, flexibility, and cardiovascular fitness. Criterion-referenced standards associated with good health are used rather than the previously applied normative standards. The improvements in the test battery are the result of thorough research and pilot testing of proposed changes by a representative group of districts across the state.

The Third Generation CPFA included a significant change in the aerobic endurance test. Beginning in 2009-10, districts had the option of using the one-mile run/walk or the **Progressive Aerobic Cardiovascular Endurance Run (P.A.C.E.R.)** to determine aerobic capacity.

Aerobic capacity (**VO<sub>2</sub> max**) is the most important area of any physical fitness program. Acceptable levels of aerobic capacity are associated with a reduced risk of high blood pressure, coronary heart disease, obesity, diabetes, some forms of cancer, and other health problems. Aerobic capacity is also commonly referred to as cardiovascular fitness, cardiorespiratory fitness, aerobic fitness, aerobic work capacity, physical working capacity, and aerobic endurance.

The portions of the Third Generation CPFA include the following:

The **Progressive Aerobic Cardiovascular Endurance Run (P.A.C.E.R.)**, which is a multi-stage fitness test, performed in a shuttle-run format that helps children pace themselves effectively. It is generally regarded as more fun for younger children than the mile run because the pace can be set to music. The P.A.C.E.R. is a viable alternative to the mile run, even though both tests measure aerobic endurance, because it can be administered indoors or in a much smaller area than is needed for the mile run.

The **back-saver sit-and-reach** is a measure of joint flexibility, which is important to overall functional health. Stretchability and symmetry of the hamstring muscles at the back of the legs, and flexibility of the spine are important to general fitness, injury avoidance, and long-term back health. The revised version of the test allows greater accommodation for the differences in the length of the arms and legs of growing children, thus is more accurate, and reduces strain on the knees.

The **90° push-up** is a test of upper body muscle strength and endurance. Strength and endurance of the muscles of the upper body are important in activities of daily living, maintaining functional health, and promoting good posture.

The **curl-up** is a test of abdominal strength and endurance. Strength and endurance of abdominal muscles are important in promoting good posture and correct pelvic alignment, important elements in good back health. The previous version of the curl-up sometimes caused neck strain, and did not account for the differences in the length of arms and legs of growing children. The improved version addresses these problems, as well as isolating the abdominal muscles for a more accurate indication of strength and endurance.

## **4. Instructions for Test Administrators**

### ***Tested Grades***

All students in Grades 4, 6, and 8 must be tested, unless they have received a medical exemption. Furthermore, all high school students must be assessed at least once during their high school years (Grades 9-12).

Students with physical disabilities or medical conditions, whose participation in the standard test would be contraindicated because of their health, and who have a medical excuse on file in the school, should be provided alternate assessments consistent with their abilities and education plan (either Individualized Education Plan (IEP) or 504). The results of these assessments should be shared with the student and their parents, but for state reporting purposes, the student should be reported in the Exempt/Alternate Assessment category.

All students in the tested grades, unless Medically Exempt, must be assessed, not just those taking physical education during certain periods of the school year.

While high schools can test students at any grade between Grades 9 and 12 for accountability purposes, the CSDE will continue to use the Grade 10 enrollment numbers to calculate the estimated participation rate. High schools may choose to continue to administer the Physical Fitness Assessment to Grade 10 students. However, please note that the assessment offers age-based criterion-referenced standards, so the assessment in high school need not be limited to only students in Grade 10. However, each student should have their results reported to the state only once in Grades 9-12.

### ***Exemptions/Alternate Assessments***

For a student to be considered medically exempt from taking the CPFA, they must be unable to attend school due to a documented medical condition.

There will be students whose participation in the standard CPFA is contraindicated by their IEP or a 504 Plan. These students should not be considered exempt. Instead, schools should have a process in place for determining those activities and standards that are appropriate for an individual student. If a test item is inappropriate for the individual student with a disability, schools should, to the best of their ability, make accommodations to allow the student to be assessed using appropriate standards and assessments. Students who are assessed using alternate standards, alternate assessments, and/or accommodations should be counted in the Exempt/Alternate Assessment category in state reporting.

In some cases, a student may have been injured and the student's injury (e.g., broken hand or arm, concussion) may temporarily affect his or her ability to complete the standard CPFA. There is no exemption from administering the assessment to such students. They may, however, be eligible for accommodations under Section 504, but as stated above, this would not make them exempt from the CPFA, and only allow for accommodations.

To ensure exemptions and alternate assessments are administered equally and with fidelity, schools should maintain documentation supporting the exemption of a student or the use of an

alternative assessment. The CSDE reserves the right to request and/or examine such documentation.

### ***Students Refusing to Participate***

Occasionally, a student will refuse to take the assessment as a whole or to participate in one of the test items. In some cases, their refusal will be the student acting on their own accord. In other cases, they will be supported by their parents. Like all state assessments however, there is no provision allowing students to choose to not take the assessment. While this will not stop some students from refusing to participate, it is important to clarify that only students who are medically exempt (i.e., medically unable to attend school) do not need to be assessed.

### ***Test Administration***

A certified physical educator must conduct the testing. Other adults may be trained to assist under the supervision of the certified physical education teacher (e.g., staff, parents, college students).

**Important note:** While other adults may assist in the administration of the CPFA, they must agree to treat the results of the assessment confidential and not discuss an individual student's performance with anyone.

Students may not be used as monitors for testing. This is a productive teaching strategy during the instruction and practice of exercise, but it is not allowed during the testing. If grouping strategies are used for classroom and test management, they should be arranged in a manner that ensures close oversight by the test administrator.

### ***Timing of the Administration***

Beginning with the 2018-19 school year, schools can administer the CPFA at any time during the school year. While in past years Grades 4, 6, 8, and high schools<sup>1</sup> had specific testing windows, these testing windows limited schools and teachers in providing the best possible instruction. With the elimination of testing windows at all levels, schools and teachers are able to assess students in a way that is best for the school and students.

The flexibility to assess students at any point during the school year includes assessing students during summer school. While this will require updating data reported to the state, it affords students who might not otherwise be able to take the assessment an opportunity to be tested.

An additional flexibility that was added during the 2018-19 school year is the ability to spread the administration of the different portions of the CPFA out over a number of months. This allows physical education educators to schedule portions of the assessment when it appropriately fits into their planned course of study. Schools that choose to use this flexibility will need to ensure that students are assessed using the standards for their age at the date of assessment, not at the beginning of the year or the beginning of the CPFA administration.

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<sup>1</sup> The assessment windows for high schools students were eliminated prior to the 2016-17 school year.

## ***Designating an Official Administration of Record***

While schools and districts may find it helpful to schedule pre- and/or post-tests for benchmarking, identification of areas of need, and tracking growth, schools and districts must designate one administration of the assessment that will be the official administration of record – the administration whose results will be reported to the CSDE for reporting and accountability purposes. While there may be some variation of testing windows between grades assessed and even classes within grades, the principle of each student being assessed only once for official purposes must be maintained.

### **Important Note:**

After the official administration has occurred, schools may ***not***:

- re-test some or all students in hopes of getting better results;
- use pre-test results of a student who refused to participate, who was temporarily unable to be assessed, or performed better on the pre-test; and
- dismiss the results of the official administration and use the results of a pre-test in its place.

A student who is absent during the official administration, who is temporarily unable to be administered (i.e., sick or injured), or transfers into a school after the assessment was administered may be tested after the school's chosen administration window.

If a school chooses to administer the different test items at different times throughout the school year, each test item must have a single official administration.

## ***Reporting Results***

The results of the CPFA are used for a variety of purposes, including the state's Next Generation Accountability System and the Profile and Performance Report. Accurate and timely reporting of assessment results is critical.

Standards used for reporting and goal setting are included as Appendix A of this manual. Testing report forms are found in the **Forms** section of this manual, beginning on page 25. They include:

- Class Record Forms – To be maintained by the physical education teacher.
- Summary Report Form – One copy to be kept by the physical education teacher. One copy to be given to the building principal for inclusion on the ED165: Connecticut School Data Report to the CSDE.
- Individual Student Report Form – For use as a district and/or school decides (e.g., for reporting information to parents/guardians; for keeping individual student records; and for use with individual students in developing a plan).

***Note: Only the data on the Summary Report Form are included in the district report to the CSDE. The Summary Report Form is given to the building principal for inclusion in the ED165.*** Class Record Forms and Individual Student Report Forms are only for use in the school and district.

## ***Documentation***

The CSDE reserves the right to verify submitted results, including the medical exemptions and/or provision of an alternate assessment to a student, for audit and program improvement purposes. To facilitate these verifications, schools and districts should maintain documentation of the assessments until the end of the school year following the tested year.

## 5. Responsibilities of Test Administrators

Test administrators must review the on-line assessment videos prior to the administration of the CPFA. These videos are designed to ensure consistency and accuracy in administration of testing procedures and maximize efficiency. Further, they help test administrators to adequately prepare for the testing sessions. The videos are available on the [CSDE's CPFA help site](https://portal.ct.gov/SDE/Physical-Education/Physical-Education---Test-Administrators-Manual) in the related resources section (<https://portal.ct.gov/SDE/Physical-Education/Physical-Education---Test-Administrators-Manual>).

Test administrators should plan for the following:

### *Prior to Testing*

- View [CPFA Fitness Testing Videos](#), which shows proper positioning and administration of the fitness tests.
- Ask physical education educators who have administered the CPFA to provide advice and offer helpful hints and suggestions prior to and during the testing period.
- Arrange for assistance, facility use, and other special scheduling as needed.
- Standardize equipment and check calibrations and measurements to assure consistency and accuracy.
- Practice with any equipment that will be used (i.e., audiotape or metronome, curl-up strips, sit-and-reach box, stopwatches). Have back-up equipment available.
- Make copies of the Class Record Form – Boys and Girls and Summary Report Form.
- Inform parents/guardians about the testing.
- Prepare students with adequate instruction and practice time in the techniques to properly perform the test items.
- Use written descriptions of test items, the CPFA Fitness Testing Video, and demonstrations to meet various learning styles of students.
- Clarify levels of expectations. Post standards for students to see.

### *During Testing*

The organization and administration of the testing session is the responsibility of the test administrator.

- Any area conducive to activity and exercise that is safe and free from obstruction can be used. Consideration should be given to assure safety and fairness in testing.
- Though it is impossible to avoid all variables (e.g., wind, running surfaces), it is expected that teachers will make every effort to achieve accurate and consistent data.
- Outdoor testing should occur on days when the temperature, humidity, and air quality are at acceptable health levels. The physical education teacher or school administrator should consult with the school nurse or school medical advisor in making this judgment.
- Test items may be administered in any order. More than one test item may be administered in any one session. All students need not be tested on the same item in any one session.
- Students are not permitted to repeat test items in order to achieve better scores.

- Volunteer help is encouraged. Volunteers (i.e., classroom teachers, administrators, parents, college students) can be trained to assist with recording scores, counting, or other tasks. If volunteer help is utilized, such volunteers must agree to hold individual student results confidential.
- Students may not be used as scorers during testing. Using well-trained students is a productive teaching strategy during the instruction and practice of the tests, but scoring their peers' test performance is not allowed.

### ***After Testing***

- The test administrator must summarize the data at the bottom of each Class Record Form.
- Summarized data should be transferred to the Summary Record Form.
- The physical education teacher should keep a copy of all forms as a back-up and for analysis of data for individual students, as well as schools.
- The Summary Record Form should be given to the building administrator. Do not send a copy to the CSDE.
- Data is reported to the CSDE on the ED165 for inclusion in the Profile Performance Report and Next Generation Accountability System.
- The Summary Record Form should be given to the building administrator as soon as testing is complete.
- Inform parents of results (Individual Student Report Form).
- Continue to include fitness instruction and activities throughout the year.
- Follow up with those students who did not meet minimal standards, (i.e., provide additional testing, develop a fitness plan, and work with parents or guardians and the school nurse).
- Keep documentation of all results, reports, and back up material supporting students who are medically exempted.

### ***General Test Administration Suggestions***

Use a circuit or station model, where the test administrator can focus on testing a small group of students performing one test item, while the other students work independently on other physical skills, challenges, or activities at other stations.

Promote a “Fitness Day,” where parent volunteers can be recruited to assist with the testing. This is a positive way to promote fitness and your physical education program within the community (please see the important note above regarding using volunteers).

Show the CPFA videos to students. Develop handouts for each test item that include a general description of the purpose and procedures for each component, as well as pictures of correct form. Design a bulletin board emphasizing the components of fitness, the tests, and activities to enhance each component.

Validity of the data is compromised if the tests are administered incorrectly, if there are errors in recording the results, if the examiners and/or students did not take the testing process seriously, or if teachers did not approach the assessment with professionalism.

## 6. Frequently Asked Questions

### ***What are criterion-referenced health standards and how were they determined?***

There are several types of standards commonly used with fitness tests. The CPFA uses criterion-referenced health standards or standards associated with good health. Scientific information is used to determine the amount of fitness needed to meet minimum health levels. The CPFA uses a “*Health-Related Fitness Zone*” to designate the range of fitness scores associated with good health. Scores falling below the Health-Related Fitness Zone are categorized as being in the “*Needs Improvement Zone*” to indicate that efforts are needed to bring the score into the Health-Related Fitness Zone. Fitness test performances that exceed the top score of the Health Fitness Zone are in the “*High Fitness Performance Zone.*” The goals in Health-Related Fitness Zone are criterion-referenced health standards because they are based on how much fitness a child needs for good health.

### ***Should feedback be provided?***

Providing feedback is an important element all assessment and should be provided to each student taking the assessment, as well as their parents. Feedback should focus on the status of students’ fitness, based on health criteria, and should include information to help interpret results. Teachers may include student reports as part of student physical education portfolios, along with other information related to important physical education objectives. Feedback shared with parents should incorporate ways parents can help students plan personal physical activity programs that are suited to their child’s personal needs.

### ***Why do some standards for boys and girls differ?***

Two factors must be taken into account when determining criterion-referenced health standards: inherent physiologic differences between genders, and differences in health risks between genders. Due to physiologic and anatomic differences between the genders, there may be inherent performance differences between boys and girls for a specific fitness component. For example, differences in cardiac function and body composition between adolescent boys and adolescent girls result in adolescent boys, as a general rule, having a higher aerobic capacity than adolescent girls. Specifically, if the minimum  $VO_2$  max for healthy girls is 28 ml.  $kg^{-1}$ .  $min^{-1}$  and for healthy boys, 32 ml.  $kg^{-1}$ .  $min^{-1}$ , setting the same standard for both on the One-Mile Run Test would not be appropriate. In the case of aerobic capacity, gender differences are taken into account, along with existing data on health risks, in order to determine the standards.

In addition to physiologic differences, the two genders do not face the same health risks during their growth. To reflect these differentiated health risks, the standards are adjusted.

### ***Why are some standards for boys and girls the same?***

When there is no valid reason for expecting a difference in the performance between boys and girls, the standards are the same. For example, young children, particularly in Grades 1-6, do not always possess the physical and physiological differences that appear as children approach puberty (Falls & Pate, 1993). When this is true, the same standards may be used for both genders. (Source: Welk, G. J. & Meredith, M.D. (Eds.). (2008). *Fitnessgram/Activitygram Reference Guide*. Dallas, TX: The Cooper Institute).

### ***Why are standards for aerobic endurance lower for girls than for boys?***

Inherent gender-related differences in body composition and in hemoglobin concentration cause aerobic capacity, referred to as VO<sub>2</sub> max, for boys and girls who have the same level of physical activity, to be different. The differences prior to puberty are very small or nonexistent (for hemoglobin concentration), but they increase during puberty and adolescence. These differences are linked in part to differences in the reproductive hormones. The lower VO<sub>2</sub> max in girls compared to boys with the same physical activity level are not thought to be associated with increased health risk. The standards for boys and girls reflect the different levels of VO<sub>2</sub> max that are associated with increased health risk in adults (*Source: Welk, G. J. & Meredith, M.D. (Eds.). (2008). Fitnessgram/Activitygram Reference Guide. Dallas, TX: The Cooper Institute.*)

### ***Should students who are physically challenged be included in fitness testing?***

Under Section 504 of the Rehabilitation Act of 1973, students with disabilities are required to be included to the best of their abilities: “No otherwise qualified handicapped individual in the United States... shall, solely by reason of his handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity which receives benefits from Federal financial assistance.”

In administering the CPFA, students with disabilities or any kind of special need should be included to the greatest extent possible. Fitness activities, exercises, and testing should be part of the physical education curriculum and offered to all students. Historically, fitness tests were designed for individuals without disabilities. The assessment included in this manual, though designed for students without disabilities, can be personalized to include all children. Because emphasis is placed on a personalized approach, and the reality that physical fitness profiles, components, and test items for students with a disability can require modification from those typically used, the many possibilities are not included in this document. Resources are available to assist physical educators with both the testing and standards that are appropriate for assessing the physical fitness of students with disabilities.

A child who is tested using an alternate method or with adjusted standards should not be included in the aggregate totals on the Summary Data Report. If a child with a disability meets standards that are appropriate for them, they should be recognized along with other children who meet the health-related fitness standards.

There are many resources available regarding levels of performance and the use of fitness assessments for students with disabilities.

### ***Should a student with a doctor’s note excusing them from the CPFA or specific test items be counted as exempt?***

Students with notes from medical professionals are not automatically exempted from being tested and do not count as exempt if they do not take the assessment. The note from a medical professional can be used by a 504 planning team to make a determination that accommodations or alternate test items are necessary, which would qualify the student to be counted as exempt.

***How should students taking adaptive physical education be assessed?***

Students taking adaptive physical education should be assessed to the best of their abilities using appropriate accommodations and/or the use of alternate assessments. In state reporting, these students would be reported under the Exempt category.

***Is a student with an IEP or 504 Plan automatically considered exempt from testing?***

Students are expected to be assessed to the best of their ability. An IEP or 504 Plan may outline specific test accommodations or indicate the use of alternate assessments. If a student is given an alternate assessment or the normal test item, but with the use of an accommodation, they should be reported in the Exempt category when results are reported to the state.

***Can a parent choose to not have their student assessed?***

Like other state assessments, there is no “refuser” option for the CPFA. All students in the tested grades are expected to be assessed, except those who are medically exempt (i.e., has a long-term, documented medical condition that renders them medically/emotionally unable to attend school).

***How to record a student who refuses to take some or all of the CPFA?***

If a student takes any action associated with an assessment (for example, lines up for the one-mile run/walk), and then chooses not to continue, they should be recorded as a participant and given the lowest score. If a student refuses to take any steps toward completing a test item, they should not be counted as a participant.

***Can a student re-take a test item to receive a better score?***

For reporting purposes, each student is tested only once during the official administration of the assessment and their result in that administration is what must be reported to the state. Prior results and/or subsequent results cannot be reported.

For instructional purposes, a physical education teacher may choose to provide a student additional opportunities to improve their performance, but these results cannot replace the results of the student’s official administration.

## **7. Rationale for Test Items**

### ***Aerobic Endurance Assessments***

Aerobic endurance is the most critical element of physical fitness. Research indicates that healthy levels of aerobic endurance are associated with reduced risk of high blood pressure, coronary heart disease, obesity, diabetes, some forms of cancer, and other health problems in adults. Aerobic endurance is also referred to as cardiorespiratory fitness. The benefits of cardiorespiratory fitness are summarized in *Physical Activity and Health: A Report of the Surgeon General* (U.S. Department of Health and Human Services, 1996).

#### ***P.A.C.E.R.***

The P.A.C.E.R. (Progressive Aerobic Cardiovascular Endurance Run) is a multi-stage aerobic fitness test that provides a built-in warm-up and helps children pace themselves effectively. It is suggested that the test be set to a musical pace to create a valid, fun alternative to the one-mile run for aerobic endurance. Pilot testing showed that most students had a positive experience in performing the P.A.C.E.R. The test helps students to learn the skill of pacing, and the negative experience of some students in finishing last in a distance run is eliminated by this test.

#### ***One-Mile Run/Walk***

The one-mile run has been a standard element of the CPFA since its inception. Many students enjoy distance running and are highly motivated by the activity both for sport and recreation. Numerous physical education and athletic programs across the state include curricular and extra-curricular distance running activities. There is significant research that has been conducted over a long period of time that supports the value of running for children, as well as the validity and reliability of evaluating aerobic fitness with the one-mile run test.

### ***Flexibility Assessments***

#### ***Back-Saver Sit-and-Reach***

The recommended item for lower body flexibility assessment is the Back-Saver Sit-and-Reach Test. The assessment is conceptually similar to the more traditional Sit-and-Reach Test, but is intended to be safer on the back by restricting flexion somewhat. With the traditional Sit-and-Reach assessment, the forward flexion movement of the trunk with the legs extended causes the anterior portion of the vertebrae to come closer together such that the discs bulge posteriorly and the muscles, fascia, and ligaments of the back are stretched. It also involves a forward rotation of the pelvis and sacrum, which elongates the hamstrings. Cailliet (1988) has pointed out that stretching both hamstrings simultaneously results in "overstretching" the low back, especially in terms of excessive disc compression and posterior ligament and erector spinae muscle strain. An additional advantage of the Back-Saver Sit and Reach Test, is that it allows the legs to be evaluated separately. This allows for the determination of symmetry (or asymmetry) in hamstring flexibility. In addition, testing one leg at a time eliminates the possibility of hyperextension of both knees.

## ***Muscular Strength and Endurance***

Balanced, healthy functioning of the musculoskeletal system requires that muscles be able to exert force or torque (measured as strength), resist fatigue (measured as muscular endurance), and move freely through a full range of motion (measured as flexibility). Positive relationships have been demonstrated between musculoskeletal fitness and health status (risk factors, disease development and all-cause mortality) in adults (Brill, Macera, Davis, Blair, & Gordon, 2000; Fitzgerald, Barlow, Kampert, et al., 2004; Jurca, Lamonte, Barlow, et al., 2005; Katzmarzyk & Craig, 2002; Kell, Bell & Quinney, 2001; Mason, Brien, Craig, Gauvin, & Katzmarzyk, 2007; Payne, Gledhill, Katzmarzyk, Jamnik & Ferguson, 2000b). The tracking of neuromuscular fitness has been shown to be moderately high (and higher than cardiovascular respiratory fitness) from adolescence to young adulthood (Twisk, Kemper, & vanMechelen, 2000). For these reasons, strength, endurance, and flexibility are viewed as important dimensions of health-related fitness.

### ***Upper Body Strength and Endurance***

#### ***The 90° Push-up Test***

A number of assessments of upper arm and shoulder girdle strength/endurance have been used in various youth fitness batteries. The most commonly used assessment is the Push-up Test. The 90° push-up was selected as the recommended test item in the CPFA because it has some very practical advantages over the pull-up. The most important advantages are that it requires no equipment and very few zero scores occur. The use of a cadence (20 reps per minute) with the push-up has been found to eliminate many of the concerns about all-out speed tests. The majority of children can successfully perform the 90° push-up and have a more favorable experience.

### ***Abdominal Strength and Endurance***

#### ***The Curl-Up Test***

A cadence-based curl-up test is recommended for abdominal strength/endurance testing in the CPFA battery. The selection of this test over a full sit-up assessment was based on extensive research and biomechanical analyses of arm placement, leg position, feet support, and range of motion of the movement (Plowman, 1992b). The use of a cadence (20 reps per minute) with the curl-up has been found to eliminate many of the concerns about the ballistic nature of one-minute all-out speed tests (Jette, Sidney, & Cicutti, 1984; Liemohn, Snodgrass, & Sharpe, 1988). Such timed tests, with legs straight or bent, often result in bouncing, jarring movements, and reflect more power than strength or endurance properties and/or allows the use of accessory muscles (Sparling, Milard-Stafford, & Snow, 1997). The use of a pace helps to avoid early fatigue based on starting too fast, standardizes the movement from person to person, and makes it easier to judge whether a full proper repetition has been completed. In addition, the use of a cadence allows students to focus on their own performance. There can be no competitive speeding up. In practice, the 3-second pace is slow enough to accomplish the intended goals described above, and fast enough to allow for efficient mass testing in school settings.

## 8. Test Item Descriptions

### ***P.A.C.E.R.***

The **P.A.C.E.R.** (Progressive Aerobic Cardiovascular Endurance Run) a paced, 20-meter shuttle run that is set to music and is increasing in intensity as time progresses. The P.A.C.E.R. is a multi-stage fitness test adapted from the 20-meter shuttle run test published by Leger and Lambert (1982) and revised in 1988 (Leger et al.). The test is progressive in intensity—easier at the beginning and more difficult at the end.

### **Test Objective**

The objective of the test is to run as long as possible back and forth across a 20-meter space<sup>2</sup> at a specified pace that gets faster each minute. The purpose of the test is to measure cardio-respiratory or aerobic endurance (VO<sub>2</sub> max). The P.A.C.E.R. is a good indicator of the ability of the circulatory and respiratory systems to supply oxygen to functioning muscles, in other words the capacity to perform activities using large muscle groups over an extended period of time. The importance of cardiorespiratory fitness lies in the fact that heart disease is a leading cause of death in our society.

### **Equipment and Facilities**

- Stopwatch.
- Accurately measured 20-meter distance on a non-slippery and flat surface free of debris (see Appendix C). A 15-meter course may be substituted if necessary (be sure to apply standards for 15-meter test).
- A device with sufficient volume and a digital copy of the cadence (i.e., downloaded mp3 [or similar] file or CD copy).
- Measuring tape, marker cones, pencils, copies of score sheets (found in the appendix).

### **Test Preparation for Students**

Students should receive ample instruction on pacing and practice in running for distance. Emphasis should be placed on developing the fastest pace that can be sustained for the full distance covered.

### **When to Stop**

The first time the student does not reach the line by the beep, the student stops where he/she is and reverses direction immediately, attempting to get back on pace. The test is completed for a student the next time (second time) he/she fails to reach the line by the beep. The two corrections do not have to be consecutive; the test is over after two total corrections. Students completing the test should continue to walk and stretch in a designated cool-down area. A student who remains at the end of the testing area through two beeps (does not run to the other end and back) should be scored as having two corrections, and therefore, their test is over.

### **Scoring**

A lap is one 20-meter distance (from one end to the other). The scorer records the lap number by crossing off the corresponding lap number on the P.A.C.E.R. score sheet (Appendix C1).

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<sup>2</sup> A 15-meter version of the test can be used by teachers with smaller-sized facilities. Specifications for the 15-meter version are included in the appendices.

The recorded score is the total number of laps completed by the student.

Laps with form corrections (laps not completed by the next beep) are not considered correctly performed and should not be counted in the student's number of completed laps.

For test management purposes within the time constraints of class schedules, it is suggested that the duration of the P.A.C.E.R. test be limited to 20 minutes.

**Important:**

Schools should administer either the P.A.C.E.R. or the Mile Walk/Run, not both. While schools may change the aerobic capacity (**VO<sub>2</sub> max**) assessment they administer from year to year, they must use a single assessment for administration during a school year (no switching within a school year).

## ***One-Mile Run/Walk***

### **Test Objective**

The objective of the test is to cover the distance of one mile in as short a time as possible. The purpose of the test is to measure cardiorespiratory or aerobic endurance. The one-mile run/walk is a good indicator of the ability of the circulatory and respiratory systems to supply oxygen to functioning muscles, in other words the capacity to perform activities using large muscle groups over an extended period of time. The importance of cardiorespiratory fitness lies in the fact that heart disease is a leading cause of death in our society.

### **Equipment and Facilities**

- Stopwatch.
- Accurately measured mile on a level surface (see Appendix B).

### **Test Preparation for Students**

Students should receive ample instruction on pacing and practice in running for distance. Emphasis should be placed on developing the fastest pace that can be sustained for the full distance covered. A warm-up time should precede the test.

### **Test Performance**

Students are instructed to run/walk one complete mile in the fastest time possible.

### **Scoring**

Record the minutes and seconds it takes for each student to complete the distance of one mile.

### **Important:**

Schools should administer either the P.A.C.E.R. or the Mile Walk/Run, not both. While schools may change the aerobic capacity (**VO<sub>2</sub> max**) assessment they administer from year to year, they must use a single assessment for administration during a school year (no switching within a school year).

## ***Back-Saver Sit-and-Reach***

### **Test Objective**

Maintaining adequate joint flexibility is important to overall health. Testing one leg at a time helps to identify any asymmetry in hamstring flexibility while avoiding hyper- extension of both knees. The purpose of the sit-and-reach test is to measure predominantly the flexibility of hamstring muscles. Normal hamstring flexibility allows rotation of the pelvis in forward bending movements and posterior tilting of the pelvis for proper sitting. The objective of the test is to reach the specified distance on the right and left sides of the body.

### **Equipment**

The back-saver sit and reach test requires a 12” x 12” x 12” box, with a measuring scale placed on the top of the box that extends toward the student. The 9-inch mark on the scale is parallel to the face of the box against which the student’s foot will rest. The ‘zero’ end of the ruler is nearest the student (See Appendix D for box specifications). Makeshift apparatuses are permitted as long as the 9-inch mark of the ruler is at the edge and the ‘zero’ is toward the student.

### **Test Description**

Testing one leg at a time, students sit with one knee bent (with that foot flat on the floor) and one leg straight, with the foot of the straight leg against the box. The student then reaches forward with both hands to the farthest point he/she can reach on the measuring scale.

### **Starting Position**

The student sits facing the box without shoes. The foot line is at 9 inches, with the zero end of the measuring device closest to the student. One leg is extended, with the foot placed flat against the end of the box. The other knee is bent, with the sole of the foot flat on the floor. The instep is positioned in line with, and 2 to 3 inches to the side of the straight knee. The knee of the extended leg should remain straight and the hips must remain square to the box.

### **Test Performance**

The arms are extended forward over the measuring scale with hands placed one on top of the other. With palms down, the student reaches directly forward (keeping back straight and head up) with both hands along the scale four times and holds the position of the fourth reach for at least one second. After one side has been measured, the student switches the position of the legs and reaches again. The student may allow the bent knee to move to the side as the body moves forward if necessary, but the sole of the foot must remain on the floor.

### **Scoring**

Record the number of inches on each side to the nearest half-inch reached, to a maximum of 12 inches. To achieve the Health Fitness Zone, the student must meet the standards on both the right and left sides.

## **90° Push-Ups**

### **Test Objective**

The purpose of this test is to measure upper-body strength and endurance. The right-angle, or 90°, push-up is recommended as a test of upper-body strength and endurance. Muscle fitness is required for people of all ages in order to perform daily living and recreational activities with vigor and undue fatigue. The objective of the test is to complete as many 90° push-ups as possible at a specified pace.

### **Equipment**

- It is necessary to acquire or prepare a recording of a consistent cadence of one push-up every three seconds (1.5 seconds up and 1.5 seconds down). A cadence recording of two minutes will allow the completion of 40 push-ups (See Appendix G for cadence recording instructions).
- A right-angle marker (See Appendix E for instructions).
- Push-ups may be performed on a mat.

### **Test Description**

Measuring upper body strength and endurance, students lower the body to a 90° elbow angle and push up. Set to a specified pace, students complete as many repetitions as possible.

#### ***Starting Position***

- The student assumes the prone position (face down).
- Hands are placed slightly wider than shoulder width with fingers stretched out.
- Legs are straight and parallel.
- Feet cannot be resting against an object.
- The back is straight.
- The head is positioned so the student is looking slightly in front of his or her hands.

### **Pre-Test Observation/Marking**

Have students lower themselves to the appropriate right-angle position. This allows the student to feel and the teacher to sight the correct position. The use of a right-angle marker, set in front of the student's elbow as a guide, allows for a more accurate sighting (position will vary for each student).

### **Test Performance**

The test begins in the up position.

The test administrator starts the cadence and signals the students to begin. Students may continue until they wish to stop or have made two form corrections.

Students begin performing push-ups according to the cadence. The correct push-up is performed to a pace of one complete push-up every three seconds (1.5 seconds down and 1.5 seconds up, with no hesitation). Push-ups are continuous, with the muscles in a constant state of contraction and no resting. Emphasis is placed on the arm and shoulder muscles remaining engaged throughout the assessment.

## Scoring

Record the total number of correctly performed push-ups. One complete push-up begins and ends in the up, or straight-arm, position.

Incorrect push-up performance, referred to as a form correction, includes:

- arching or sagging of the back;
- not achieving the right angle at the elbow during the down phase;
- not achieving the straight arm position during the up phase;
- knees touching the floor; or
- being off cadence.

The test is terminated when the student has any two corrections.

Push-ups with form corrections are not considered correctly performed and should not be counted in the number completed by the student.

## ***Curl-Ups***

### **Test Objective**

The partial curl-up measures abdominal strength and endurance. Abdominal fitness is important to good health because low levels are associated with bad posture and lower back pain in later years. The test objective is to complete as many curl-ups as possible up to a maximum of 75 at a specified pace.

### **Equipment**

It is necessary to prepare or secure an audiotape or use a consistent cadence of one curl-up every three seconds (1.5 seconds up and 1.5 seconds down), which is 20 curl-ups per minute. A cadence recording of 3 minutes will allow the completion of 60 curl-ups. (See Appendix G for cadence recording instructions.)

- A gym mat and a measuring strip are needed for every two students. The strip may be made of cardboard, tape, rubber, smooth wood, or any similar thin, flat material, and should be 30-35 inches long. For 5-9 year olds, a 3-inch wide strip is required. For 10 year olds and up, the strip should be 4.5 inches wide. (See Appendix F for curl-up strip specifications.)
- A piece of paper, 8.5 X 11 inches, is also required.

### **Test Description**

Measuring abdominal strength and endurance, students lie down in a supine position with knees bent and feet unanchored flat on the floor. The knees and feet should be slightly apart and arms straight and parallel to the trunk with palms of hands resting on the mat. After the student has assumed this position, a partner is to place the measuring strip on the mat under the tested partner's legs so that the fingertips are just touching the nearest edge of the strip. The shoulders should be relaxed and un-hunched before the strip is placed. The partner also places a piece of paper under the tested partner's head. This is to provide an easily observable touching of the head to the mat on each repetition, as the paper will make a crinkling sound when the back of the head contacts it.

Set to a specified pace, students complete as many repetitions as possible to a maximum of 75 at the specified pace/cadence.

### **Test Performance**

The student assumes the starting position. The test administrator starts the cadence and signals the student to begin.

Keeping heels in contact with the mat, the student is to curl up slowly, sliding fingers across the measuring strip until fingers reach the other side. Then the student uncurls until the head crinkles the paper on the mat. Movement should be slow and gauged to the audible cadence of 20 curl-ups per minute, or one curl-up every three seconds.

## Scoring

The score is the total number of correctly performed curl-ups within the time limit. A curl-up is complete each time the student's head returns to the mat.

### *Form corrections:*

- Heels must remain in contact with the mat.
- Head must return to the mat on each repetition.
- Pauses and rest periods are not allowed. The movement should be continuous and with the cadence.

Fingertips must touch both sides of the measuring strip for a completed repetition.

The test is terminated when the student has performed any two corrections.

Curl-ups with form corrections are not considered correctly performed and should not be counted in the number completed by the student.

# 9. Data Collection and Reporting Form — Girls

## Class Record Form

Grade: \_\_\_\_\_ Date: \_\_\_\_\_ Class: \_\_\_\_\_ Test Administrator: \_\_\_\_\_

<b><i>Important:</i></b> The CSDE reserves the right to verify submitted data. This form should be maintained until the end of the next school year.	Age When testing began	✓ If Exempt/Alt. Assessment	Aerobic Endurance		✓ If Met Health-Related Fitness Zone Standard	Flexibility		✓ If Met Health-Related Fitness Zone Standard	Muscular Strength/ Endurance Curl-ups (#correctly completed)	✓ If Met Health-Related Fitness Zone Standard	Upper-Body Strength 90° Push-ups (#correctly completed)	✓ If Met Health-Related Fitness Zone Standard	✓ For Students Meeting the Health Standard on <b>All 4</b> Test Items
			One Mile	PACER		Back-Saver	Sit-and-Reach						
Student Name			One Mile	PACER		Left	Right						
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
<b>Highlight those students tested on ALL 4 items, then fill in the totals below including ONLY those students tested on ALL 4 items.</b>													
<b>Totals: Number of students tested on ALL 4 items.→</b>													

*Note:* A student who refuses to take any actions associated with a test item is not considered to have participated in the test item. A student who refuses to complete an item, but started the item, is considered to have participated, but received the lowest score possible.

**RETAIN THIS FORM**

# 9. Data Collection and Reporting Form — Boys

## Class Record Form

Grade: \_\_\_\_\_ Date: \_\_\_\_\_ Class: \_\_\_\_\_ Test Administrator: \_\_\_\_\_

<b>Important:</b> The CSDE reserves the right to verify submitted data. This form should be maintained until the end of the next school year.	Age When testing began	√ If Exempt/Alt. Assessment	Aerobic Endurance		√ If Met Health-Related Fitness Zone Standard	Flexibility		√ If Met Health-Related Fitness Zone Standard	Muscular Strength/ Endurance Curl-ups (# correctly completed)	√ If Met Health-Related Fitness Zone Standard	Upper-Body Strength 90° Push-ups (#correctly completed)	√ If Met Health-Related Fitness Zone Standard	√ For Students Meeting the Health Standard on <b>All 4</b> Test Items
			One Mile	PACER		Back-Saver	Sit-and-Reach						
Student Name													
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
<b>Highlight those students tested on ALL 4 items, then fill in the totals below including ONLY those students tested on ALL 4 items.</b>													
<b>Totals: Number of students tested on ALL 4 items. →</b>													

**Note:** A student who refuses to take any actions associated with a test item is not considered to have participated in the test item. A student who refuses to complete an item, but started the item, is considered to have participated, but received the lowest score possible.

**RETAIN THIS FORM**

**Connecticut Physical Fitness Assessment  
Test Administrator's Summary Report Form**

School: \_\_\_\_\_ School District: \_\_\_\_\_ Date: \_\_\_\_\_

Test Administrator: \_\_\_\_\_ Principal: \_\_\_\_\_

Test administrators teaching in more than one school must report the results separately for each school/program. Information needed for this form can be found on the Class Record Form.

One copy of this Summary Report Form is to be submitted to the school principal for inclusion on the ED165 report to the State Department of Education. Test administrators should retain one copy of all forms for their own records. The **Health-Related Fitness Zone Standards** are the basis of the data reported on this form.

Totals: Taken from the bottom line of the Class Record Forms

	Grade 4		Grade 6		Grade 8		High School	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
<b>A.</b> Number of students tested on all 4 items								
<b>B.</b> Number of students exempt/Alternate Assessment								
<b>C.</b> Number of students meeting the aerobic endurance standard (One-Mile Run/Walk or P.A.C.E.R)								
<b>D.</b> Number of students meeting the flexibility standard (Back-Saver Sit-and-Reach Test)								
<b>E.</b> Number of students meeting the upper body strength and endurance standard (90° Push-Up Test)								
<b>F.</b> Number of students meeting the abdominal muscle strength and endurance standard (Curl-Up Test)								
<b>G.</b> Number of students meeting the standards on all 4 test items								

- The number of students meeting a standard on any one test should never exceed the number tested on all 4 items.
- Students who were not tested on all 4 items should not be counted in total reported on this form.
- A student who refuses to take any actions associated with a test item is not considered to have participated in the test item. A student who refuses to complete an item, but started the item, is considered to have participated, but receives the lowest score possible.

## Connecticut Physical Fitness Assessment Individual Student Report

### Student Information

Name: \_\_\_\_\_ Grade: \_\_\_\_\_ Age: \_\_\_\_\_

School District: \_\_\_\_\_ School \_\_\_\_\_

Instructor Name: \_\_\_\_\_

### Test Performance Results

Health-Related Fitness Component	Passing Standard		Student Score		Health Fitness Zone Standard			Student Refused
					Not Met <input checked="" type="checkbox"/>	Met <input checked="" type="checkbox"/>	Exceeded <input checked="" type="checkbox"/>	
Aerobic endurance (One Mile Run/Walk or P.A.C.E.R)								
Flexibility (Back-Saver Sit-and-Reach)	Left	Right	Left	Right				
Upper Body Muscle Strength and Endurance (90° Push-Up)								
Lower Body Muscle Strength and Endurance (Curl-Up)								

## 10. **Appendices**

# Appendix A

## Standards for Health-Related Fitness Zone

### Standards for Health-Related Fitness Zones

I = Needs Improvement Zone (does not meet health-related standard)  
 F = Health Fitness Zone (meets health-related standard)  
 H = High Fitness Performance Zone (exceeds health-related standard)

#### Boys

Age	20-meter PACER			15-Meter PACER			One-Mile Run/Walk			Sit-and-Reach			90° Push-Ups			Curl-Ups			
	Zone	I	F	H	I	F	H	I	F	H	I	F	H	I	F	H	I	F	H
8		0-22*	23-61*	>61*	0-29*	30-80*	>80*	>12:30*	12:30-10:00*	<10:00*	0-7	8		0-4	5-13	>13	0-5	6-20	>20
9		0-22*	23-61*	>61*	0-29*	30-80*	>80*	>12:00*	12:00-9:30*	<9:30*	0-7	8		0-5	6-15	>15	0-8	9-24	>24
10		0-22	23-61	>61	0-29	30-80	>80	>11:30	11:30-9:00	<9:00	0-7	8		0-6	7-20	>20	0-11	12-24	>24
11		0-22	23-72	>72	0-29	30-94	>94	>11:00	11:00-8:30	<8:30	0-7	8		0-7	8-20	>20	0-14	15-28	>28
12		0-31	32-72	>72	0-41	42-94	>94	>10:30	10:30-8:00	<8:00	0-7	8		0-9	10-20	>20	0-17	18-36	>36
13		0-40	41-83	>83	0-53	54-108	>108	>10:00	10:00-7:30	<7:30	0-7	8		0-11	12-25	>25	0-20	21-40	>40
14		0-40	41-83	>83	0-53	54-108	>108	>9:30	9:30-7:00	<7:00	0-7	8		0-13	14-30	>30	0-23	24-45	>45
15		0-50	51-94	>94	0-66	67-123	>123	>9:00	9:00-7:00	<7:00	0-7	8		0-15	16-35	>35	0-23	24-47	>47
16		0-60	61-94	>94	0-79	80-123	>123	>8:30	8:30-7:00	<7:00	0-7	8		0-17	18-35	>35	0-23	24-47	>47
17		0-60	61-106	>106	0-79	80-138	>138	>8:30	8:30-7:00	<7:00	0-7	8		0-17	18-35	>35	0-23	24-47	>47
17+		0-71	72-106	>106	0-93	94-138	>138	>8:30	8:30-7:00	<7:00	0-7	8		0-17	18-35	>35	0-23	24-47	>47

#### Girls

Age	20-meter PACER			15-Meter PACER			One-Mile Run/Walk			Sit-and-Reach			90° Push-Ups			Curl-Ups			
	Zone	I	F	H	I	F	H	I	F	H	I	F	H	I	F	H	I	F	H
8		0-6*	7-41*	>41*	0-8	9-54*	>54*	>12:30*	12:30-10:00*	<10:00*	0-8	9		0-4	5-13	>13	0-5	6-20	>20
9		0-6*	7-41*	>41*	0-8	9-54*	>54*	>12:30*	12:30-9:30*	<9:30*	0-8	9		0-5	6-15	>15	0-8	9-22	>22
10		0-6	7-41	>41	0-8	9-54	>54	>12:30	12:30-9:30	<9:30	0-8	9		0-6	7-15	>15	0-11	12-26	>26
11		0-14	15-41	>41	0-18	19-54	>54	>12:00	12:00-9:00	<9:00	0-9	10		0-6	7-15	>15	0-14	15-29	>29
12		0-14	15-41	>41	0-18	19-54	>54	>12:00	12:00-9:00	<9:00	0-9	10		0-6	7-15	>15	0-17	18-32	>32
13		0-22	23-51	>51	0-29	30-67	>67	>11:30	11:30-9:00	<9:00	0-9	10		0-6	7-15	>15	0-17	18-32	>32
14		0-22	23-51	>51	0-29	30-67	>67	>11:00	11:00-8:30	<8:30	0-9	10		0-6	7-15	>15	0-17	18-32	>32
15		0-31	32-51	>51	0-41	42-67	>67	>10:30	10:30-8:00	<8:00	0-11	12		0-6	7-15	>15	0-17	18-35	>35
16		0-31	32-61	>61	0-41	42-80	>80	>10:00	10:00-8:00	<8:00	0-11	12		0-6	7-15	>15	0-17	18-35	>35
17		0-40	41-61	>61	0-53	54-80	>80	>10:00	10:00-8:00	<8:00	0-11	12		0-6	7-15	>15	0-17	18-35	>35
17+		0-40	41-72	>72	0-53	54-94	>94	>10:00	10:00-8:00	<8:00	0-11	12		0-6	7-15	>15	0-17	18-35	>35

\*Indicates experimental performance standard, based on expert opinion

6/11/09

Also available online at <https://portal.ct.gov/SDE/Physical-Education/Physical-Education---Test-Administrators-Manual/Related-Resources>

## ***Appendix B***

### ***Suggested Layouts for the One-Mile Run/Walk***

The one-mile run/walk can be performed on any flat surface that measures one mile in distance. The course can be laid out in any shape that uses the area as efficiently as possible, maximizes straightaway running, and minimizes corners or turns. It may be necessary to lay out a course around the perimeter of the school property or around the school building. Use of a measuring wheel or tape will provide accuracy. Pacing out an estimated mile is not acceptable. There are 5,280 feet or 1,760 yards in one mile.

1. A 440-yard track will require four laps to complete one mile.
2. An area marked off with 55 yards on all four sides will require eight laps to complete the mile. One lap would equal 220 yards ( $55 \times 4$ ). Eight laps would equal 1,760 yards ( $220 \times 8$ ).
3. An area marked off with 27.5 yards on all four sides will require 16 laps to complete the mile. One lap would equal 110 yards ( $27.5 \times 4$ ). Sixteen laps would equal 1,760 yards ( $110 \times 16$ ).

## Appendix C

### ***Specifications for Administering the P.A.C.E.R.***

#### ***Test Preparation Instructions***

Mark the 20-meter (21-yard, 32-inch) course with marker cones to divide lanes and a tape or chalk line at each end.

Make copies of score sheet A and B for each group of students to be tested.

Before the actual testing episode, allow students to listen to several minutes of the recording so they know what to expect. Students should be allowed two practice opportunities before the day of the actual test.

#### ***Organizing the Test***

Assign or allow students to select a partner. Students who are performing the test form a line along the starting line.

At the signal to start, students run across the 20-meter distance and touch the line with their foot by the time the beep sounds. At the sound of the beep, they turn around and run back to the other end. If some students get to the line before the beep, they must wait for the beep before running in the other direction. Students continue in this manner until they fail to reach the line before the beep for the second time.

A single beep will sound at the end of the time for each lap. A triple beep sounds at the end of each minute. The triple beep serves the same function as the single beep, and alerts the runners that the pace is about to get faster.

For test management purposes within the time constraints of class schedules, it is suggested that the duration of the P.A.C.E.R test be limited to 20 minutes. Twenty minutes is sufficient time for completion of the number of laps required for the High Fitness Performance Zone Standards.

## Appendix C1

### Sample Score Sheet for P.A.C.E.R.

Contributed by the Physical Education Staff at Naugatuck High School (updated 7/2019)

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#### PACER Test – Score Sheet

Performer: \_\_\_\_\_ Class/Period: \_\_\_\_\_ Age: \_\_\_\_\_

Date: \_\_\_\_\_ Score: \_\_\_\_\_

**Draw ‘X’ for each completed lap, ‘M’ for non-completed laps.  
‘M’ Laps do not count toward the total completed laps.**

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

*Appendix C2*

*Sample P.A.C.E.R. Warm-Up and Training Activities*

(Separate attachment to manual)

## *Appendix D*

### *Sit-and-Reach Box Specifications*

Sit-and-reach boxes are available for purchase from fitness equipment vendors, can be constructed from wood, or can be easily fashioned from readily accessible materials.

Here are some flexibility testing apparatus suggestions:

1. Use a sturdy box at least 12 inches tall. A flat side of the box should be facing up. Attach a ruler to the top flat side so that the 9-inch mark is exactly parallel with the vertical plane against which the subject's foot will be placed and the zero-end is nearer the subject.
2. Use a bench that is about 12 inches wide. Turn the bench on its side. Attach a ruler to the top flat side so that the 9-inch mark is exactly parallel with the vertical plane against which the subject's foot will be placed and the zero-end is nearer the subject.

## *Appendix E*

### *Using a Right-Angle Marker for the 90° Push-Up*

A variety of effective methods can be implemented to illustrate the 90° angle to be achieved at the elbows of the test subject at the lowest point of the push-up.

The use of a carpenter's right angle, a T-square, or simply two pieces of wood fastened together at a right angle is suggested. This device, placed upright in front of each student being tested, provides a good visual aid for the test administrator and the student. Ideally, if something can be created that slides up and down, this would allow adjustment for individual size differences.

Once the distance to which the subject should lower her/himself to achieve the 90° elbow-flex is determined, an object such as a cone, a soft ball, or other piece of pliable equipment can be placed under the student's chest or shoulder to aid in reinforcing the appropriate 'down' level for each push-up repetition. The size and height of the equipment that is used may vary depending on the age and size of the students.

## *Appendix F*

### *Curl-Up Strip Specifications*

Curl-up strips can be made from cardboard, poster board, linoleum, vinyl, thick tape, or any flat material that has texture sufficient for the test-taker to feel with the fingertips.

Curl-Up Measuring Strip		
Ages	Length	Width
5-9 years	30+ Inches	3 Inches
10+ years	30+ Inches	4.5 Inches

For correct performance of the curl-up, the student must move the fingers 3 inches (for ages 5-9 years) and 4½ inches (for ages 10 and above). The student should be able to feel the stopping point rather than needing to see it.

## *Appendix G*

### *Developing Audio Guides*

The curl-ups and push-ups are performed to a cadence of one complete repetition every three seconds. This is best accomplished through a digital recording. The simplest way to do this is to record a metronome set at 40 beats per minute. Each click of the metronome represents the up or down phase of a curl-up or push up, (1.5 seconds up and 1.5 seconds down). In other words, two clicks represent one complete repetition.

At the beginning of the recording, some dialogue may be included. (Example: For the curl-ups; “Students take your positions, this test will begin in five seconds..., three, two, one, up, down.”) The use of verbal cues, “up/down,” can be helpful and included, as long as the cadence is the same. Prepare your recording well ahead of time and practice using it with your students. This will help the students to become comfortable with the pacing and scores will be more reliable.

#### Recording Requirements:

- **90° Push-Up Recording:** In order to score in the High Fitness Performance Zone, a minimum of 35 push-ups must be completed by 17-year-old and older boys, which take 1 minute and forty-five seconds (1:45). So, the duration for the 90° push-up recording should be at least 2 minutes, allowing for 40 push-ups. The High Fitness Performance Zone for girls’ push-ups begins at 15 push-ups.
- **Curl-Up Recording:** In order to score in the High Fitness Performance Zone, a minimum of 47 curl-ups must be completed by 17-year-old and older boys, which take 2 minutes and twenty-one seconds (2:21). So, the duration for the curl-up recording should be at least 3 minutes, allowing for 60 curl-ups. The High Fitness Performance Zone for girls’ curl-ups begins at 35 curl-ups.

## *Appendix H*

### *Changes to Manual Summer 2019*

<b>Change</b>	<b>Page</b>
<b>Exemptions/Alternate Assessments:</b> This section has been updated, including the section title and the addition of a paragraph on maintenance of documentation for students reported as exempt or assessed using alternate standards or assessments.	6
<b>Designating an Official Administration of Record:</b> This section was added.	8
<b>Documentation:</b> This section was added.	9
<b>FAQ:</b> A new question about re-taking assessments has been added.	14
<b>P.A.C.E.R.:</b> Updated language around the counting of corrections as completed laps to align the P.A.C.E.R. with other test items on the non-inclusion of corrections as completed laps.	18
<b>Push-Ups:</b> Clarification on the counting of corrections and completed push-ups added.	22
<b>Curl-Ups:</b> Clarification on the counting of corrections and completed curl-ups added.	24
<b>Data Collection and Reporting Form:</b> The forms were updated to include the need to maintain the forms for documentation purposes.	25-26
<b>Standards for Health-Related Fitness Zone:</b> Embedded the standards into the manual.	30
<b>Sample Score Sheet for P.A.C.E.R.:</b> Updated language around non-completed laps to align with updated P.A.C.E.R. guidance on the non-inclusion of corrections as completed laps.	33