**SELECTION CLASSIFICATION FITNESS TEST COMPONENTS**

1. **LOWER BODY STRENGTH**

***Item*:** **STANDING LONG JUMP**

***Equipment*:** Mat or floor and tape measure.

***Description*:** Athlete stands with feet several inches apart and toes just behind the

takeoff line. Swing the arms backward and bending the knees, the jump is

accomplished extending the knees and swinging the arms forward.

***Rules*:** Allow three trials. Measure from the back edge of the take-off line to the

heel or part of the body that touches the floor nearest the take-off line.

(Suggestion: Tape the measure to the floor starting at the back of the takeoff

line and have the athlete jump along the tape so scorer can observe the

mark to the nearest inch.

***Scoring*:** Record the best of three trials in feet and inches to the nearest inch.

**2. UPPER BODY**

***Item*:** **FLEXED ARM HANG**

***Equipment*:** Horizontal bar approximately 1-1/2" in diameter

***Description*:** Adjust bar height so it is approximately equal to the athlete’s standing

height. Use an overhand grasp (palms away from the face). With two

spotters, one in front and one in back, athlete raises body off the floor to a

position where the chin is above the bar, the elbows are flexed, and the

chest is close to the bar. Hold this position as long as possible.

***Rules*:** a) Start watch as soon as athlete has chin above the bar.

b) Stop watch when chin touches the bar, head tilts back to keep chin

above the bar, or chin falls below level of the bar.

***Scoring:***Record to the nearest second for the length of time the athlete can

hold the start position.

**3. ABDOMEN**

***Item*:** **CURL-UPS (Sit-ups)**

***Equipment*:** Mat and stopwatch

***Description*:** Athlete lies on back with knees bent, feet flat on the floor, heels 12" from

the buttocks, and back flat on floor. Arms across the chest, fingers on the

opposite shoulder, elbows against chest. For a taller athlete, this distance

may be adjusted to accommodate him/her. With someone holding the feet

down, the athlete brings upper body forward, curling up (sitting up) to

touch elbows to thighs. That is one curl-up. Athlete must return to start

position before starting next curl-up. Exercise is repeated for one minute

and athlete completes as many curl-ups as possible in the one-minute

interval.

***Rules*:** Fingers must remain in contact with shoulders, back should be rounded

and head should be forward on the way up. Scapula must touch the floor

before starting next curl-up. Hips must remain on the floor.

***Scoring*:** Record one curl-up (sit up) for each completed movement of touching

elbows to thighs. No score is giving if the fingertips do not maintain

contact with shoulders, or if the elbows are extended, or if the hips leave

the ground.

**4. CARDIOVASCULAR**

***Item*:** **1.5-MILE RUN/WALK**

***Equipment*:** Track or area marked off for 1.5 miles and stopwatch

***Description*:** Standing at starting line, athlete begins to run on the signal “Ready - Go”

from starter/timer. Starter/timer positions self at the finish line.

***Rules*:** Walking is permitted. However, the object is to cover the distance in the

shortest possible time.

***Scoring*:** Record the time in minutes and nearest second.

**FITNESSGRAM TEST COMPONENTS**

**The PACER**

The PACER (Progressive Aerobic Cardiovascular Endurance Run) is the default aerobic capacity test in FITNESSGRAM. The PACER is a multistage 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.it is easy at the beginning and gets harder at the end. The progressive nature of the test provides a built-in warm-up and helps children to pace themselves effectively. The test has also been set to music to create a valid, fun alternative to the customary distance run test for measuring aerobic capacity. Information on obtaining the music CD can be found in appendix A on page 81.

The PACER is recommended for all ages, but its use is strongly recommended for participants in grades K-3. The PACER is recommended for a number of reasons, including the following:

- All students are more likely to have a positive experience in performing the PACER.

-The PACER helps students learn the skill of pacing.

-Students who have a poorer performance will finish first and not be subjected to the embarrassment of being the last person to complete the test.

When you are administering the test to these younger children, the emphasis should be on allowing the children to have a good time while learning how to take this test and how to pace themselves. Allow children to continue to run as long as they wish and as long as they are still enjoying the activity. Typically the test in grades K-3 will only last a few minutes. It is not desirable or necessary to make the children run to exhaustion.

***Test Objective***

To run as long as possible back and forth across a 20-meter space at a specified pace that gets faster each minute. A 15-meter version of the PACER test has been developed for teachers with smaller sized facilities. In order to enter 15-meter scores into the 8.0 software, a conversion chart is available on page 94. The music CD is now available.

***Equipment and Facilities***

Administering the PACER requires a flat, nonslippery surface at least 20 meters long, CD or cassette player with adequate volume, CD or audiocassette, measuring tape, marker cones, pencil, and copies of score sheet A or B (found in appendix B). Students should wear shoes with nonslip soles. Plan for each student to have a 40 to 60-inch-wide space for running. An outdoor area can be used for this test if you do not have adequate indoor space. There should be a designated area for finished runners and for scorekeepers. You may want to paint lines or draw chalk lines to assist students in running in a straight line.

Note: Because many gyms are not 20 meters in length an alternative 15-meter PACER test CD is now available. The procedures described below are the same for the 15-meter distance, but an alternate CD and scoring sheet are required to track the number of laps. In order to enter 15-meter scores into the 8.0 software, a conversion chart is available on page 94. The music CD is now available.

***Test 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.

-If using the audiotape, calibrate it by timing the 1-minute test interval at the beginning of the tape. If the tape has stretched and the timing is off by more than half a second, obtain another copy of the tape.

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

-Before test day, allow students to listen to several minutes of the tape so that they know what to expect. Students should then be allowed at least two practice sessions.

-Allow students to select a partner. Have students who are being tested line up behind the start line.

-The individual PACER CDs have two music versions, one with only the beeps, and one with the cadences for the pushup and curlup tests. Each version of the test will give a 5-second countdown and tell the students when to start.

-Students should 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 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 also alerts the runners that the pace will get faster. Inform students that when the triple beep sounds they should not stop but should continue the test by turning and running toward the other end of the area.

***When to Stop***

The first time a student does not reach the line by the beep, the student stops where he or 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 or she fails to reach the line by the beep (the two misses do not have to be consecutive; the test is over after two total misses).

Students just completing the test should continue to walk and stretch in the designated cool-down area. Figure 5.1 provides diagrams of testing procedures.

Note: A student who remains at one end of the testing area through two beeps (does not run to the other end and back) should be scored as having two misses and the test is over.

***Scoring***

In the PACER test, a lap is one 20-meter distance (from one end to the other). Have the scorer record the lap number (crossing off each lap number) on a PACER score sheet (samples provided in appendix B). The recorded score is the total number of laps completed by the student. For ease in administration, it is permissible to count the first miss (not making the line by the beep). It is important to be consistent in the method used for counting with all of the students and classes.

An alternative scoring method is available. This method does not eliminate students when they miss their second beep (Schiemer, 1996). Using the PACER score sheet B, the teacher establishes two different symbols to be used in recording, such as a star for making the line by the beep and a triangle for not making the line. The scorer then draws a star in the circle when the runner successfully makes the line by the beep and a triangle when the runner fails to make the line by the beep, simply making a record of what occurs. The runners can continue to participate until the leader stops the music or until they voluntarily stop running. To determine the score, find the second triangle (or whatever symbol was used). The number associated with the preceding star is the score. An example is provided in figure 5.2.

Criterion standards for students in grades K-3 have purposefully not been established. There are concerns regarding the reliability and validity of the test results for very young children. Even with practice, it is difficult to ensure that young children will pace themselves appropriately and give a maximal effort. The object of the test for these younger students is simply to participate and learn about the test protocol.

Students ages 5 to 9 years in grades K-3 do not have to receive a score; they may simply participate in the activity. With the software, you may enter the actual number of laps or enter a score of 0 laps to indicate that they successfully participated in the PACER run. Regardless of the entry, the performance will not be evaluated against a criterion standard. Nine-year-olds in grade 4 may receive a score, and it will be evaluated against a criterion standard. All 10-year-old students receive a score regardless of grade level.

***Suggestions for Test Administration***

-Both PACER CDs contain 21 levels (1 level per minute for 21 minutes). During the first minute, the 20-meter version allows 9 seconds to run the distance; the 15-meter version allows 6.75 seconds. The lap time decreases by approximately one-half second at each successive level. Make certain that students have practiced and understand that the speed will increase each minute.

-A single beep indicates the end of a lap (one 20-meter distance). The students run from one end to the other between each beep. Caution students not to begin too fast. The beginning speed is very slow. Nine seconds is allowed for running each 20-meter lap during the first minute.

- Triple beeps at the end of each minute indicate the end of a level and an increase in speed. Students should be alerted that the speed will increase. When students hear the triple beeps they should turn around at the line and immediately continue running. Some students have a tendency to hesitate when they hear the triple beeps.

-A student who cannot reach the line when the beep sounds should be given one more chance to attempt to regain the pace. The second time a student cannot reach the line by the beep, his or her test is completed.

-Groups of students may be tested at one time. Adult volunteers may be asked to help record scores. Students may record scores for each other or for younger students.

-Each runner must be allowed a path 40 to 60 inches wide. It may work best to mark the course.

- If using the audiotape, you may save time by using two tapes and two cassette players. Rewind the first tape while the second group is running the tests, and so forth. Using the CD is a much more efficient method for administering this test item.

**90 Degree Push-Up**

The 90 degree push-up to an elbow angle of 90 degrees is the recommended test for upper body strength and endurance. Test administration requires little or no equipment; multiple students may be tested at one time, and few zero scores result. This test also teaches students an activity that can be used throughout life as a conditioning activity as well as in self-testing.

The 90 degree push-up has generally been shown to produce consistent scores but reliability depends on how it is administered. Lower values have been reported for elementary aged students using partners to count the repetitions. Objectivity, or the ability of different observers to attain the same results, is a factor in this item because of the necessity of judging the 90 degree angle. Scores from student partners are consistently higher than adult counts because students tend to simply count each attempted 90 degree push-up and not evaluate whether it was done correctly. As with several of the other neuromuscular fitness items, determining the accuracy of the 90 degree push-up as a test of upper body strength and endurance is made difficult by the lack of an agreed upon criterion measure. Specific validation data are available for the 90 degree push-up in only two studies conducted on college age students. Validity coefficients against a 1-RM bench press were the highest when the criterion test was the number of repetitions (endurance) at an absolute, but sex-specific, load.

Before test day, students should be allowed to practice doing 90 degree push-ups and watching their partner do them. Teachers should make a concerted effort during these practice sessions to correct students who are not achieving the 90 degree angle. In this manner all students will gain greater skill in knowing what 90 degree feels like and looks like.

***Test Objective***

To complete as many 90 degree push ups as possible at a rhythmic pace. This test item is used for males and females.

***Equipment and Facilities***

The only equipment necessary is an audiotape with the recorded cadence. The correct cadence is 20 90 degree push-ups per minute.

***Test Instructions***

The students should be paired; one will perform the test while the other counts 90 degree push-ups and watches to see that the student being tested bends the elbow to 90 degree with the upper arm parallel to the floor.

The student being tested assumes a prone position on the mat with hands placed under or slightly wider than the shoulders, fingers stretched out, legs straight and slightly apart, and toes tucked under. The student pushes up off the mat with the arms until arms are straight, keeping the legs and back straight. The back should be kept in a straight line from head to toes throughout the test. The student then lowers the body using the arms until the elbows bend at a 90 degree angle and the upper arms are parallel to the floor. This movement is repeated as many times as possible. The student should push up and continue the movement until the arms are straight on each repetition. The rhythm should be approximately 20 90 degree push-ups per minute or 1 90 degree push-up every 3 seconds.

***When to Stop***

Students are stopped when the second form correction (mistake) is made. Only one form correction is allowed.

***Form Corrections***

-Stopping to rest or not maintaining a rhythmic pace

-Not achieving a 90‹ angle with the elbow on each repetition

-Not maintaining correct body position with a straight back

-Not extending arms fully

***Scoring***

The score is the number of 90 degree push-ups performed. For ease in administration, it is permissible to count the first incorrect 90 degree push-up. It is important to be consistent with all of the students and classes when determining if you will count the first incorrect push-up.

***Suggestions for Test Administration***

-Test should be terminated if the student appears to be in extreme discomfort or pain.

-Cadence should be called or played on a prerecorded tape or CD.

- Males and females follow the same protocol.

-Find a short cone or other piece of pliable equipment that could be placed under the students chest. The student must lower to the equipment in order for the 90 degree push-up to count. The size and height of the equipment that is used may vary depending on the age and size of your students.

-It may be helpful to make a recording with a voice-over that counts the number of 90 degree push-ups for the students (record the teacher counting over the cadence CD).

**Curl-Up**

This section provides information on the curl-up assessment used in FITNESSGRAM. The curl-up with knees flexed and feet unanchored has been selected because individually these elements have been shown to a) decrease movement of the fifth lumbar vertebra over the sacral vertebrae, b) minimize the activation of the hip flexors, c) increase the activation of the external and internal obliques and transverse abdominals, and d) maximize abdominal muscle activation of the lower and upper rectus abdominals relative to disc compression (load) when compared with a variety of sit-ups.

Few results are available on the consistency and accuracy of the curl-up. Reliability is higher for college students than for children but the values are acceptable for this type of assessment. Determination of validity has been hampered by the lack of an established criterion measure. Anatomical analysis and electromyographical documentation provide the primary support for the use of the curl-up test to determine abdominal strength and endurance.

***Test Objective***

To complete as many curl-ups as possible up to a maximum of 75 at a specified pace.

***Equipment and Facilities***

Gym mats and a measuring strip for every two students are needed. The measuring strip may be made of cardboard, rubber, smooth wood, or any similar thin, flat material and should be 30 to 35 inches long. Two widths of measuring strip may be needed. The narrower strip should be 3 inches wide and is used to test 5- to 9-year-olds; for older students the strip should be 4.5 inches wide. Other methods of measuring distance such as using tape strips and pencils are suggested in appendix A.

***Test Instructions***

Allow students to select a partner. Partner A will perform the curl-ups while partner B counts and watches for form errors.

Partner A lies in a supine position on the mat, knees bent at an angle of approximately 140 degrees, feet flat on the floor, legs slightly apart, arms straight and parallel to the trunk with palms of hands resting on the mat. The fingers are stretched out and the head is in contact with the mat. Make sure students have extended their feet as far as possible from the buttocks while still allowing feet to remain flat on floor. The closer the feet are positioned in relation to the buttocks, the more difficult the movement.

After partner A has assumed the correct position on the mat, partner B places a measuring strip on the mat under partner A’s legs so that partner A’s fingertips are just resting on the nearest edge of the measuring strip. Partner B then kneels down at partner A’s head in a position to count curl-ups and watch for form breaks. Partner B places a piece of paper under partner A’s head. The paper will assist partner B in judging if partner A’s head touches down on each repetition. The observer should watch for the paper to crinkle each time partner A touches it with his or her head.

Before beginning the curl-up, it is a good practice for partner B to pull on partner A’s hands to ensure that the shoulders are relaxed and in a normal resting position. If partner A is allowed to hunch the shoulders before beginning the test, he or she may be able to get the fingertips to the other side of the testing strip by merely moving the arms and shoulders up and down. Keeping heels in contact with the mat, partner A curls up slowly, sliding fingers across the measuring strip until fingertips reach the other side, then partner A curls back down until his or her head touches the piece of paper on the mat. Movement should be slow and gauged to the specified cadence of about 20 curl-ups per minute (1 curl every 3 seconds). The teacher should call a cadence or use a prerecorded cadence. A recorded cadence may be found on the PACER music tape or CD. Partner A continues without pausing until he or she can no longer continue or has completed 75 curl-ups.

***When to Stop***

Students are stopped after completing 75 curl-ups, when the second form correction is made, or when they can no longer continue.

***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 the far side of the measuring strip.

***Scoring***

The score is the number of curl-ups performed. Curl-ups should be counted when the student’s head returns to the mat. For ease in administration, it is permissible to count the first incorrect curl-up. It is important to be consistent with all of the students and classes when determining whether or not you will count the first incorrect curl-up.

***Suggestions for Test Administration***

-The student being tested should reposition if the body moves so that the head does not contact the mat at the appropriate spot or if the measuring strip is out of position.

-Movement should start with a flattening of the lower back followed by a slow curling of the upper spine.

-The hands should slide across the measuring strip until the fingertips reach the opposite side (3 or 4.5 inches) and then return to the supine position. The movement is completed when the back of the head touches the paper placed on mat.

-The cadence will encourage a steady, continuous movement done in the correct form.

-Students should not forcibly reach with their arms and hands but simply let the arms passively move along the floor in response to the action of the trunk and shoulders. Any jerking, kipping, or reaching motion will cause the students to constantly move out of position. When students first begin to use this test item, many will want to reach with their arms and hands, especially if they have previously done a timed sit-up test.

-This curl-up protocol is quite different from the one-minute sit-up. Students will need to learn how to correctly perform this curl-up movement and be allowed time to practice.

**These tests and scores are based on material provided by the:**

**Cooper Institute for Aerobics Research in Dallas**

**Push-Up Test**

Measures muscular endurance of the upper body (anterior deltoids, pectoralis major, triceps).

**Equipment:** Watch with a second hand.  
**Preparation:** Warm up by doing a few light jumping jacks and arm circles.  
**Procedure:**

* Place both hands on the floor, about shoulder-width apart, with fingers pointed forward.
* Place a 3-inch sponge or small box under your chest, or have a partner put his or her fist under your chest.
* Lift your knees, so that your weight is supported on your palms and toes. Your legs, buttocks and back should be in a straight line. (If this is too difficult, keep your knees on the floor and do a modified push-up, with your body in a straight line from knees to ears. Let your feet come up off the floor and cross them at the ankles or leave them slightly apart.)
* The push-up begins in this "up" position. Bend your arms and keep your back straight as you lower your body to the floor until it touches the sponge or your partner's fist.
* Push back up to the "up" position. This counts as one complete push-up.
* Perform as many correct push-ups as you can in one minute. Any resting should be done in the "up" position.

**12-Minute Aerobic Test**

Measures cardiovascular endurance.

***Equipment:*** Comfortable walking shoes, watch with second hand, indoor or outdoor track.  
***Preparation:***

* Do not eat a heavy meal or smoke for at least two hours before the test.
* Warm up for several minutes by walking at an easy pace, then stretch gently.

***Procedure:***

* Using the inside lane of the track, cover as much distance as possible in 12 minutes. You may walk, jog or run.
* Record the distance you covered. (Each completed lap is a quarter of a mile.)
* Cool down by walking at a comfortable pace for several minutes.

**V-sit Reach (or Sit and Reach)**

This activity measures flexibility of the lower back and hamstrings.

***Procedure:***

* A straight line two feet long is marked on the floor as the baseline.
* A measuring line four feet long is drawn perpendicular to the midpoint of the baseline extending two feet on each side and marked off in half-inches. The point where the baseline and measuring line intersect is the “0” point.
* Student removes shoes and sits on floor with measuring line between legs and soles of feet placed immediately behind baseline, heels 8-12 inches apart.
* With hands on top of each other, palms down, the student places them on measuring line.
* With the legs held flat by a partner, the student slowly reaches forward as far as possible, keeping fingers on the measuring line and feet flexed.
* After three practice tries, the student holds the fourth reach for three seconds while that distance is recorded.

***V-sit Reach Tip***

Participants are most flexible after a warm-up run. Best results may occur immediately after performing the endurance run.

***V-sit Reach Rules***

Legs must remain straight with soles of feet held perpendicular to the floor (feet flexed). Students should be encouraged to reach slowly rather than “bounce” while stretching. Scores, recorded to the nearest half inch, are read as plus scores for reaches beyond baseline, minus scores for reaches behind baseline.