

The MCPS fitness testing program aligns with the VDOE to provide basic health-related assessments to help students identify areas of fitness that are directly linked to overall quality of life. Health-related fitness includes the five major components of fitness directly related to improvement of health.

1. Cardiorespiratory Endurance --- the ability of the blood vessels, heart and lungs to take in, transport, and utilize oxygen. This is a critically important component of fitness because it impacts other components of fitness and decreases the risk of cardiovascular diseases.
2. Muscular Strength --- the maximum amount of force a muscle or muscle groups can exert.
3. Muscular Endurance --- the length of time a muscle or muscle group can exert force prior to fatigue.
4. Flexibility --- the range of motion in the joints.
5. Body Composition --- the amount of fat versus lean mass (bone, muscle, connective tissue, and fluids). While some fat is essential for insulation and providing energy, too much fat can cause serious health problems.

Virginia uses the Cooper Institute FITNESSGRAM® standards as the State-designated fitness test. The FitnessGram's® criterion-referenced science-based approach identifies the physical fitness test items that assess the important aspects of a student's health-related fitness. They evaluate functional fitness not "athletic" fitness levels. On the Cooper Institute FITNESSGRAM® tests, students are NOT compared to each other, but to health-related fitness standards established for each age and gender that indicate good health. The Cooper Institute's ongoing scientific research and validation work is used to update the standards when appropriate. The 4th Edition is the most current at this time.

THE ASSESSMENT PROCESS STEP BY STEP

An overview of the assessment process is provided below to facilitate basic instruction on fitness. The assessment process consists of eight steps, beginning with instruction and ending with revision.

Step One: *Instruction About Activity and Fitness Concepts*

Students should be instructed in basic concepts of fitness development and maintenance. Concepts should include the following:

- Importance of regular exercise for health and the prevention of degenerative diseases
- Description of each area of fitness and its importance to health
- Methods to use in developing each area of fitness

Step Two: Student Participation in Conditioning Activities

If fitness testing is being conducted, students should be preconditioned for testing to maximize safety. The Get Fit Conditioning Program provided in appendix B on page 90 may be used for this purpose. Do some of these activities in class; assign others for completion during the student's leisure time.

Step Three: Instruction on Test Items

Include the following topics when teaching each test item:

- Why it is important for health
- What it measures
- How to administer it
- Practice sessions

Step Four: Assessment of Fitness Levels

If possible, allow students to test one another or have a team of volunteers assist in conducting the assessments. Also, teach students to conduct self-assessments. A sample *School Volunteer Confidentiality Agreement* is posted at the end of this document.

Step Five: Planning the Fitness Program and Setting Goals

After completing the fitness tests, use the results to help each student set goals and plan his or her personal fitness program. Activity goals can emphasize areas in which the student has the greatest needs.

Be sure to include the following activities:

- Inform students and parents of results with the *FITNESSGRAM*.
- Teach students how to interpret their results.
- Assist students in setting process goals for an exercise program that will improve or maintain their fitness levels or their activity levels (see appendix B for goal-setting form).
- Evaluate group performance.

Step Six: Promoting and Tracking Physical Activity

The teacher should make every effort to motivate students to establish regular physical activity habits and to recognize students for success in their efforts. An activity log may be useful to help students learn how to monitor their physical activity levels. The use of the Presidential Active Lifestyle Award as a behavioral incentive can help to promote physical activity in students.

Allow time during physical education for students to work toward their goals. You should also expect them to spend some of their leisure time participating in fun activities that will help them achieve their goals. The

critical consideration is that students should have FUN while participating in physical activity.

Step Seven: Reassessment

Periodic reassessment apprises students of how they are changing and reinforces for them the practice of "sticking with it." Recognition for achieving goals is a vital part of establishing behavior patterns.

Step Eight: Revision

Reassessment yields new information so that you can revise or refine goals. In a physical education setting it is important to provide individualized feedback to students so they know what areas they should work on the most. However, a major instructional goal should be to teach students how to evaluate their own results and make their own personal goals.

SELECTED TESTS FOR MCPS STUDENTS

The following tests are used to report HFZ percentages by grade and by gender to the VDOE in May of each school year.

The PACER

The PACER (Progressive Aerobic Cardiovascular Endurance Run) 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. All aerobic capacity evaluation and report output will be based on VO_2 max (maximal oxygen uptake). This is a calculated value that requires both the performance element (number of laps or time) and the body mass index (BMI).

The PACER is recommended for all ages, but its use is strongly recommended for participants in grades K-3. 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.

The PACER is recommended for a number of reasons: a) all students are more likely to have a positive experience in performing the PACER, b) the PACER helps students learn the skill of pacing, and c) 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.

Body Mass Index

The BMI provides an indication of the appropriateness of a child's weight relative to height. Body mass index is determined by the following formula: weight (kg) / height² (m). Height and weight measures, recorded as a regular portion of the testing process for all students, are converted to metric units to calculate BMI-pounds to kilograms and feet to meters. BMI is needed to calculate HFZ for the PACER.

Curl-Up

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. Attention must be directed to proper alignment of shoulders. Tape is recommended for the fingertip start and stop lines so that students can feel when they achieve the necessary range of motion.

Trunk Lift

It is important that attention be given to performance technique during this test. The movement should be performed in a slow and controlled manner with eyes on an object placed on the mat. The maximum score on this test is 12 inches. While some flexibility is important, it is not advisable (or safe) to encourage hyperextension.

Research results have shown that isokinetic trunk endurance, torso length, body weight, passive trunk extension, trunk extension endurance, trunk strength, and flexibility all contribute to performance of the trunk lift. However, a single repetition, partially body weight limited, restricted range item, this test is a minimal assessment of the components of trunk strength and flexibility. Most school-aged individuals will pass this test easily.

Flexed Arm Hang (Elementary Schools)

A third alternative to the recommended 90° push-up is the flexed arm hang. The flexed arm hang is a static test of upper body strength and endurance. Consistency in times for the flexed arm hang has been shown to be acceptable in both 9- and 10-year-olds and college aged students. Two studies, which have attempted to validate the flexed arm hang against the 1-RM arm curl for endurance have shown weak correlations. Thus, only anatomical logic validates this item, as with most of the other upper body tests.

Test Objective

To hang with the chin above the bar as long as possible.

90° Push-Up (Secondary Schools)

The 90° push-up to an elbow angle of 90° 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.

Before test day, students should be allowed to practice doing 90° push-ups and watching their partner do them. A nerf ball may be placed on the mat to ensure the proper range of motion. Loose shirts should be tucked in for accuracy. Teachers should make a concerted effort during these practice sessions to correct students who are not achieving the 90° angle with a straight spine. In this manner all students will gain greater skill in knowing what 90° "feels like" and "looks like."

Back-Saver Sit and Reach

The back-saver sit and reach is very similar to the traditional sit and reach except that the measurement is performed on one side at a time. By testing one leg at a time a determination can be made of any asymmetry in hamstring flexibility, and hyperextension of both knees is avoided. The sit and reach measures predominantly the flexibility of the hamstring muscles. Normal hamstring flexibility allows rotation of the pelvis in forward bending movements and posterior tilting of the pelvis for proper sitting.

Shoulder Stretch

The shoulder stretch is a simple test of upper arm and shoulder girdle flexibility intended to parallel the strength/ endurance assessment of that region. If used alternately with the back-saver sit and reach, it may be useful in educating students that flexibility is specific to each joint and that hamstring flexibility neither represents a total body flexibility nor is the only part of the body where flexibility is important.

The HFZ in either the Sit and Reach or Shoulder Stretch test must be achieved to count for flexibility.

INTERPRETING PERFORMANCE ON PHYSICAL FITNESS ASSESSMENTS

The primary reason for testing is to provide the student with data to be used in planning a personal fitness plan. FITNESSGRAM uses criterion-referenced standards to evaluate fitness performance. These standards represent a level of fitness that offers some degree of protection against sedentary lifestyle diseases.

Performance is classified in two general areas: "Healthy Fitness Zone" and "Needs Improvement". The healthy fitness zone indicates the child has a

sufficient level of functional fitness. The needs improvement zone indicates that the child may be at risk if that level of fitness stays the same over time. The healthy fitness zone represents a range of scores (by sex and age) that would provide health benefits if the same level of fitness is maintained into adulthood. There is an upper range on the healthy fitness zone because epidemiological evidence suggests that the additional improvements from progressively higher levels of fitness are not significant. If volunteers are used for any part of fitness testing, the following agreement template should be used:

Template for MCPS/ School Volunteer Confidentiality Agreement

I understand that in the course of my volunteer time with Montgomery County Public Schools (MCPS) and _____ School, I may become aware of confidential information about specific students, which may include such information as students' academic performance, behavior, health, disabilities and related matters. I understand and agree that I will not disclose such confidential information except to school employees who have a need to know.

I have read, understand, and agree to the information presented above:

Signature: _____ Date: _____