

## HEALTH-RELATED FITNESS TESTING GUIDELINES

Health-related fitness education is an important component of a physical education program. A well-designed fitness assessment process provides students, teachers, and parents with the necessary information to design an individualized program of fitness for each student.

The sequential program of physical fitness instruction in Virginia is based on the personal fitness strand in the Standards of Learning that focuses student learning on achievement of a health-enhancing level of physical fitness. Students who participate in effective physical fitness programs will be more likely to develop lifelong habits that promote health and learning.

The Virginia Standards of Learning personal fitness goal for elementary students is to become aware of health-related fitness components (cardio respiratory endurance, body composition and muscular endurance, strength and flexibility) while engaging in a variety of physical activities.

The Standards of Learning personal fitness goal for middle school students is to continue to learn more about the components of fitness, how they are developed and improved, how they interrelate, and how they contribute to overall fitness.

While in high school, students plan, implement, evaluate, and modify a personal, goal-driven fitness plan that enables them to achieve and maintain a level of fitness that allows them to meet their personal goals for various work-related, sport, and leisure activities.

A unit of fitness includes:

- Instruction on activities and fitness concepts.
- Student participation in conditioning activities.
- Instruction on test items.
- Assessment of fitness levels.
- Planning individualized fitness programs and setting goals.
- Promoting and tracking physical activity.
- Reassessment of fitness levels.

The Virginia fitness testing program provides basic health-related fitness 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.

In addition to improving quality of life, health-related fitness:

- increases muscle tone and strength;
- decreases susceptibility to injuries and illness;
- improves bone mineral density;
- reduces risk of osteoporosis;
- improves posture;
- increases efficiency of the respiratory and circulatory systems;
- decreases risk of cardiovascular disease and stroke;
- improves blood pressure;
- decreases risk of diabetes and some cancers;
- improves self-esteem and self-confidence;
- decreases body fat and improves metabolism; and
- increases energy level and academic achievement.

Fit students feel better, look better, have more energy and are better learners. Physical education programs in Virginia provide students with the essential knowledge and skills to design a basic exercise prescription for improving each component of health-related fitness. This fitness plan includes Frequency, Intensity, Time and Type of exercise, also referred to as the "F.I.T.T. Formula".

In addition, students study key training principles to improve health-related fitness. These include the principles of overload, progression, specificity, reversibility, and individuality. Physical education students will also learn to apply the skill-related physical fitness components of agility, balance, coordination, reaction time, speed and power for successful execution of sports-related skills.

Physically educated students in Virginia have the basic health literacy to be empowered to continue a personal fitness program for a lifetime.

Virginia and many other states have used the Cooper Institute FITNESSGRAM® standards as the state-designated fitness test for the last few decades. 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 scientific research and validation work conducted over many years have refined these standards and have yielded a few changes in 2006 to the fitness area tests, the Healthy Fitness Zones (HFZs), and the data reporting requirements.

### **Recommended Tests**

The following five health-related fitness tests are the recommended.

- The Pacer,
- Abdominal Strength Curl-up,
- Trunk Lift,
- 90 degree push up, and
- Flexibility.

NOTE: Body composition testing (skinfold or BMI) are optional.

### **Healthy Fitness Zone Criteria Changes (occurred in 2005-2006)**

The Healthy Fitness Zones (HFZs), or performance standards for the Progressive Aerobic Cardiovascular Endurance Run (PACER) have been modified to align with the HFZs for the Walk Test. The past version of the PACER used standards based on the laps completed in order to avoid large age and gender disparities in the HFZs. These adjustments, however, led to inconsistencies with the estimates of VO<sub>2</sub> max scores used to standardize the two different assessments of aerobic capacity. (The VO<sub>2</sub> max score reflects the maximum rate that oxygen can be taken into and used by the body during exercise.) The FITNESSGRAM® Scientific Advisory Board determined it was more appropriate to maintain the alignment with the other tests. Therefore, the original HFZs for the PACER have been reinstated.

### **Fitness Test Changes (changes occurred in 2005)**

The Pull-Up is no longer an option on the FITNESSGRAM®. Very few students can successfully perform even one pull-up, and the assessment does not provide a good indicator of upper body strength. The ability to perform a pull-up is not predictive of good health or fitness. The FITNESSGRAM® Scientific Advisory Board has removed the test as an option in the FITNESSGRAM® test battery. The removal of this test option requires teachers to select from the Push-Up, the Modified Pull-Up, or the Flexed-Arm Hang to measure upper body strength and endurance.

The Walk Test has been added as an optional test for secondary students. The shoulder stretch test has been added to the flexibility tests.

The Trunk Lift test has been added to as a recommended test. The trunk lift measures trunk extensor strength and flexibility - for low back health and proper vertebral alignment.

The Virginia assessment program includes recommended test items in the following two areas of fitness: Aerobic Capacity and Muscle Strength, Endurance, and Flexibility. While an important component of health-related fitness, due to sensitive issues surrounding body composition the decision to collect and report this data is a local option.

### **Aerobic Capacity (select one)**

- The PACER - a 20 meter progressive, multi-stage shuttle run set to music (it is now also available in a 15 meter distance). (recommended)
- Walk Test - for students ages 13 or older (recommended)
- One Mile Walk/Run (option)

Aerobic capacity is the most important area of any fitness program. The PACER, Walk Test and the Mile Walk/Run provide estimates of VO<sub>2</sub>max, so direct comparisons can be made between the results of these tests.

If you are not administering all the tests, the PACER is one of the recommended tests because students are more likely to have a positive experience, and students who have a poorer performance will finish first and not be subject to the embarrassment of being the last person to finish the test.

The other recommended test is the Walk Test because it is an assessment that can be used for a lifetime. Secondary students should learn about this assessment since it is one they can repeat on their own to self-assess their fitness levels.

### **Muscle Strength, Endurance, and Flexibility**

- Abdominal Strength Curl-up Test - measures strength and endurance of abdominal muscles (recommended test)
  
- Trunk Lift - measures trunk extensor strength and flexibility - for low back health and proper vertebral alignment (recommended test)

### **Upper Body Strength (select one)**

- 90 degree Push-up - strength and endurance of muscles in the upper body are important in activities of daily living and promoting good posture (recommended)
  
- Flexed Arm Hang (option)
  
- Modified Pull-up (option)

### **Flexibility (select one)**

- Back-saver Sit-and-reach
  
- Shoulder Stretch

Tests of muscular strength, muscular endurance, and flexibility have been combined into one broad fitness category to determine the functional health status of the musculoskeletal system. It is equally important to have strong muscles that can work forcefully over a period of time that are flexible enough to allow full range of motion at the joint.

### **Body Composition (may select one option)**

- Percent body fat (Skinfold Measurement is the recommended test)
  
- Body mass index (option)

Data indicate that obesity among children is on the increase. Obesity is present when total body weight is more than 25 percent fat in boys and more than 32 percent fat in girls. Although childhood obesity is often defined as a weight-for-

height in excess of 120 percent of the ideal, skinfold measures are more accurate determinants of fatness.

Obesity presents numerous problems for the child. In addition to negatively impacting learning and increasing the risk of obesity in adulthood, childhood obesity is the leading cause of pediatric hypertension, is associated with Type II diabetes mellitus, increases the risk of coronary heart disease, increases stress on the weight-bearing joints, lowers self-esteem, and affects grades and relationships with peers. Some authorities feel that social and psychological problems are the most significant consequences of obesity in children.

### **Inappropriate Uses of Fitness Testing**

Grading students on their fitness performance may be holding them accountable for accomplishments beyond their control and is **NOT recommended**. Fitness capacity, like blood cholesterol, is largely determined by genetics. Changes in body fatness and body size have major effects on fitness test performance. During periods of rapid maturational change, children may experience an increase or decrease in their abilities to perform on certain tests completely independent of their levels of physical activity.

Posting the test results for other students to see can create an embarrassing situation that does little to foster positive attitude toward activity and fitness.

Grading students on their understanding of fitness concepts, what the tests measure, designing a personalized fitness program and types of fitness-enhancing activities are appropriate measures of student learning.

Students make choices that impact their health. Students who understand and value good nutrition and physical fitness will be more likely to make better choices and develop lifelong habits that maximize health.

Promoting physical fitness is only one part of a quality physical education program. Teaching physical skills, cooperative skills, and health maintenance skills are equally important objectives for promoting lifelong physical activity.

### **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.

## **Test Administration Resources**

To purchase a FitnessGram test kit, administrative manual, and 8.0 software package go to <http://www.fitnessgram.net/>.

NOTE: Human Kinetics, Inc. has reduced the price of the FitnessGram administrative manual (includes PACER CD and DVD with video clips of tests). The price for Virginia schools is 30% off the list price. Shipping is not included in this price. To order contact:

John Klein, K-12 Education Sales Director  
Human Kinetics, Inc.  
1607 North Market Street, Champaign, IL 61820  
PH: 800-747-4457, Ext. 2361  
FAX: 217-351-2674

## **Virginia's Fitness Test Reporting Categories**

### 1. Aerobic Capacity

\*PACER

One Mile Run/Walk

One Mile Walk Test

### 2. Upper Body Strength and Endurance

\*90 Degree Push-Up

Modified Pull-Up

Flexed Arm Hang

### 3. Abdominal Strength and Endurance

\*Curl-Up Cadence

### 4. Trunk Extensor Strength

\*Trunk Lift

### 5. Flexibility

\*Back-Saver Sit and Reach

Shoulder Stretch

### 6. Body Composition (optional)

Skinfold Measurement (optional)

Body Mass Index (BMI) (optional)

\*recommended tests

## FitnessGram Testing Protocols

To access the FitnessGram testing protocols and the healthy fitness zone criteria go to [www.FitnessGram.net/protocols](http://www.FitnessGram.net/protocols).

Enter your e-mail address and your authorization code is: “VATEACHERS”.  
The code is not case sensitive.

Click on each test for testing objectives, instructions, administration, equipment needs, scoring, and other information. The Boys and Girls’ Healthy Fitness Zone Criteria are located at the bottom of the list of tests.

**FITNESSGRAM<sup>®</sup> / ACTIVITYGRAM<sup>®</sup>**

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*Activity and fitness assessment  
and personal physical activity management*

**FITNESSGRAM Test Protocols and  
Healthy Fitness Zone Criteria**

Enter your e-mail address and your authorization code to proceed.

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Vanessa.Wigand@doe.virginia.gov.

USA (toll free): 1-800-747-4457; [outside US contact information](#)  
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## FITNESSGRAM Test Protocols and Healthy Fitness Zone Criteria

[PACER](#)  
[One-Mile Run](#)  
[Walk Test](#)

[Skinfolds](#)  
[BMI](#)

[Curl-Up](#)  
[Trunk Lift](#)  
[90° Push-Up](#)  
[Modified Pull-Up](#)  
[Flexed Arm Hang](#)

[Back-Saver Sit and Reach](#)  
[Shoulder Stretch](#)

[Boys Healthy Fitness Zone Criteria](#)  
[Girls Healthy Fitness Zone Criteria](#)

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## **Single Sign-On Web Reporting System for Virginia**

The Department of Education is pleased to offer a statewide fitness data analysis service for school divisions. A Supts. Memo. will be posted in April outlining the process.

Electronic submission of the division data will be aggregated and posted as a state summary at <http://www.pen.k12.va.us/VDOE/Instruction/PE/>. Division names will not be identified on the state summary.

**Single Sign-on for Web Systems (SSWS)** is a portal through which school division personnel may access many of the Virginia Department of Education data collection processes. It is intended to provide a simple, secure, and reliable environment for access to all of the different types of education information managed by the divisions. SSWS allows each user to have access to data collection processes. Security and access to data is maintained at the user id level so that each user only has access to their information, and to only those applications that they need to see. User account security is maintained by the use of a password that is only known to the user.

The local SSWS Account Manager in each division is assigned the duties of maintaining the user accounts and granting access to applications. They must establish a user account for each person needing access, and grant each user in their division permission for access to each required application. Before a user can perform any work within SSWS, they must first be setup by their Account Manager and granted access to any required application modules.

### **Accessing SSWS:**

From your Web browser, enter the Web address (URL) for SSWS:  
<https://eb01.vak12ed.edu/ssws>.

The system will connect you to the VDOE Web server through a secure connection. Before access is granted you must first identify yourself. The system will prompt you for your User Name and Password. The user name is the user id established for you by the SSWS Account Manager. The password will have been communicated to you via e-mail or is one that you selected. Enter the requested information and click on the "Login" button.

You will either be presented with your SSWS welcome page, or a login error message. If you are given the "Login Incorrect" message, it indicates that either the user id or password you entered was not correct. Click on the "Click Here to Continue" link to try again. Please note that user id's and passwords are case sensitive, make sure you are using the correct case when typing the entries. Also please note that five failed login attempts will lock your account and the local SSWS Account Manager must unlock it for continued access.

After successfully logging in, the VDOE Sign-On Home Page will appear. The “menu” in the center of the page will display the systems you may access. On the left of the SSWS page is a blue bar, which is the SSWS navigation bar. On it will be links to preprogrammed functions that you can use. Normally at this point the only one available will be “Log Out”, used to sign you off of the system. The other way to sign off is simply to close the browser.

### **Forgotten Password**

If you are unable to login, but are sure you are entering the correct user id; it must mean that you have forgotten your password. A new one can be assigned to you by clicking on the “I Forgot My Password” link. This action will require you to enter your user id, and the e-mail address established for you for SSWS communications. Once all of the information has been correctly entered, an automatic e-mail will be sent to you with a new temporary password. You will be able to use that password one time to access SSWS.