Physical Fitness Testing in California Schools Using FITNESSGRAM

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This presentation is supported by educational materials adapted from California Department of Education, Human Kinetics – FITNESSGRAM, and Cooper Institute
Learning Outcomes

1. Improve Knowledge & Skills of PFT-FG Protocols
2. Understand & Apply 2011-12 FG – PFT Changes
3. Discover New Resources
4. Explore PFT Links to PE Standards
5. Consider Using Protocol for Looking at PFT Data
Training Materials & Resources

Resources You’ll Need for this Training

* PFT Protocols & CDE Video Links
* CDE & FG Change Documents/Charts/PPT’s
* Local PFT Data and 30 min Protocol

Recommended for this Training

* FITNESSGRAM Test Manual
  * Test DVD
  * Test Cadence CD
  * Recording & Reporting Tools
CA Fitness Testing Mandate

* Use FITNESSGRAM® protocols
* Test window Feb 1 - May 31
* Test all 5th, 7th, 9th graders enrolled in PE or not
* All “exempted” students must be tested during testing window
* Disabled students get tested on as much of PFT as possible – unless IEP says “limit” or “no”.

CENTER FOR Healthy & Schools
ORANGE COUNTY DEPARTMENT OF EDUCATION
Teacher Preparation Mandates

Must

* Be school employee
* Be trained
* Provide all test options available to students for each test
* Have appropriate equipment and supplies provided to all testing teachers
Instruction must include:

* Informing students of purpose of PFT
* All test items and options
* Practice time
* Allow students to choose test options best for them
PFT Records Mandate

* Must keep records of all annual FITNESSGRAM scores
* Maintained in student permanent record
* Must share upon student request for transfer
Reporting Requirements

* Record data and report for each student tested
* Students told or given results
* May report to parents
* Results to CDE
* Publish District & School Summary
* School & district data available online at CDE website
data1.cde.ca.gov/dataquest
Required Assessment Tool/Protocol

FITNESSGRAM®

* Criterion-referenced data
* Purpose - help student establish lifetime habits of regular physical activity
* Data aids in assessing Gr 1-9 CA Physical Education learning outcomes
Fitness Assessment
Content Knowledge

Do you know:
What teachers and students need to “know” and be able to “do” to meet grade level fitness test proficiency based on CA Standards?
Two Kinds of Physical Fitness?

* Skill-Related Fitness
* Health-Related Fitness
Skill-Related Fitness Components

1. Agility
2. Balance
3. Coordination
4. Power
5. Reaction time
6. Speed

Could someone possess a high level of skill-related fitness and still not be healthy?
Health-Related Fitness Components

1. Aerobic Fitness
2. Muscular Strength, Endurance & Flexibility
3. Healthy Body Composition

Could someone possess a high level of health-related fitness and still not be healthy?
Healthy Fitness Zone (HFZ)

* Age and Gender Specific
* Est. Values, Scores, Repetitions, Distances
* Meet minimum performance
* Level of fitness that reduces Metabolic Syndrome and protects against diseases resulting from physical inactivity.
* FITNESSGRAM Standards = CA Healthy Fitness Zone Criteria
Aerobic Capacity

Test estimates student VO$_2$max

* 3 test options:
  1. PACER Test (Progressive Aerobic Cardiovascular Endurance Run)
  2. One-Mile Run Test
  3. Run/Walk Test (only for ages thirteen or older)
Muscular Strength, Endurance & Flexibility

Tests measure Functional Health of Musculoskeletal System

1. Curl-Up - abdominal strength & endurance
2. Trunk Lift - trunk extensor strength & flexibility
3. Push-Up, Mod Pull-Up or Flexed Arm-Hang - upper body strength & endurance (3 Options)
4. Sit & Reach or Shoulder Stretch – flexibility (2 Options)
Body Composition

Test measures and compares Percent of Lean Wt. (lbs.) vs. Percent Fat Wt. (lbs.)

* 3 data collection options
   1. Body Mass Index (BMI)
   2. Bio-Electric Impedance Analyzer (BIA)
   3. Skinfold Measurement
1. Healthy Fitness Zones (HFZs)
   - Aerobic Capacity
   - Body Composition. (See New HFZ Charts in CDE PFT Resources)

2. New CDE-HFZ charts also provide
   - minimal scores (no longer a range of scores)
   - new “up to a max” for Curl-Up, Push-Up, Modified Pull-Up, and Flexed-Arm Hang tests
     - For example, a fifteen-year-old male ≥ 15 (up to 50 max) push-ups to be considered in the HFZ
4 Steps to Understanding Changes to CA PFT-FITNESSGRAM (FG)

1. Read - FG Key Points & Rational
2. Review Changes in Body Comp & Aerobic Capacity
3. Look at CDE Changes, Briefing & Charts
4. Use FG Look-Up Charts w/ SAMPLE Student Data
Read: “New Healthy Fitness Zone Standards: Key Points for Teachers and Administrators”

1. Silently read a section together
   * underline new ideas or changes you understand
   * draw a “?” next to things that leave you wondering “what do them mean?”

2. At end of each section – stop reading:
   * “A” shares one thing they noted – with no discussion
   * Then “B” shares one thing they noted – with no discussion

3. Repeat until you finish article

4. If time - discussion of what you read that drew a blank
Why New Standards?

* Aerobic Capacity
  * Excessively high passing rates for young girls
  * Classification disagreement between PACER and One Mile Run

* Body Composition
  * Standards for very young children did not discriminate adequately
  * More child fitness data available as basis for performance standards
Basis for New Standards

* National Health and Nutrition Survey (NHANES)
* Research linking body fatness and aerobic capacity with increased risk of metabolic syndrome
* Normal changes during growth and maturation reflected in Age and Gender
An individual is considered to be at high risk of metabolic syndrome if they have any three of the five following conditions:

1. High blood pressure
2. High fasting glucose
3. High waist circumference
4. High triglycerides
5. Low HDL cholesterol

What is Metabolic Syndrome?
Young boys and girls do not differ substantially but follow different patterns as age increases.

New standards will classify children into three zones:
- Healthy Fitness Zone
- Needs Improvement – Some Risk
- Needs Improvement – High Risk

Three zones allow for more specific health messaging.
Unique: FG New Body Composition Standards

- FG BMI does not follow the CDC percentile standards, they are criterion standards
- There is a “Very Lean” zone
- Body Composition standards are established based on levels of body fatness associated with increased risk of health problems / metabolic syndrome
- New BMI targets were equated with these levels of body fatness
Changes: CDE HFZ for Body Composition

Now 4 levels of Body Comp performance:

1. Very Lean (considered in HFZ)
2. In the HFZ
3. Needs Improvement – Some Risk
4. Needs Improvement – High Risk
See: new CDE Healthy Fitness Zone Charts

### FITNESSGRAM® Healthy Fitness Zones

The FITNESSGRAM® uses Healthy Fitness Zones (HFZs) to evaluate fitness performance. These zones represent minimum levels of fitness that offer protection against the diseases that result from sedentary living.

#### Females

<table>
<thead>
<tr>
<th>Age</th>
<th>One-Mile Run $\text{VO}_{2\text{max}}$ (mL/kg/min)</th>
<th>20m PACER $\text{VO}_{2\text{max}}$ (mL/kg/min)</th>
<th>Walk Test $\text{VO}_{2\text{max}}$ (mL/kg/min)</th>
<th>Skinfold Measurements</th>
<th>Body Mass Index</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bioelectric Impedance Analyzer</td>
<td>Percent Body Fat</td>
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<tr>
<td>5</td>
<td>Lap count of time standards not recommended</td>
<td>Completion of test standards not</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>≥ 40.2</td>
<td>recommended $\text{VO}_{2\text{max}}$ not</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>≥ 40.2</td>
<td>recommended $\text{VO}_{2\text{max}}$ not</td>
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<td></td>
</tr>
<tr>
<td>8</td>
<td>≥ 40.2</td>
<td>recommended $\text{VO}_{2\text{max}}$ not</td>
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<td></td>
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<td>9</td>
<td>≥ 40.2</td>
<td>recommended $\text{VO}_{2\text{max}}$ not</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>≥ 40.2</td>
<td>recommended $\text{VO}_{2\text{max}}$ not</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>≥ 40.2</td>
<td>recommended $\text{VO}_{2\text{max}}$ not</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>≥ 40.2</td>
<td>recommended $\text{VO}_{2\text{max}}$ not</td>
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<td>≥ 38.8</td>
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<tr>
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<td>≥ 38.6</td>
<td>≥ 38.6</td>
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#### Abdominal Strength and Endurance

<table>
<thead>
<tr>
<th>Age</th>
<th>Curl-Up # completed up to max of 75</th>
<th>Trunk Lift # of inches</th>
<th>Trunk Lift 90° Push-Up # completed up to max of 50</th>
<th>Modified Pull-Up # completed up to max of 50</th>
<th>Flexed-Arm Hang # of seconds up to max of 30</th>
<th>Back-Saver Sit &amp; Reach # of inches up to max of 12</th>
<th>Shoulder Stretch</th>
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<tr>
<td>5</td>
<td>≥ 2</td>
<td>6 – 12</td>
<td>≥ 3</td>
<td>≥ 2</td>
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<td>≥ 2</td>
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<td>6</td>
<td>≥ 2</td>
<td>6 – 12</td>
<td>≥ 3</td>
<td>≥ 2</td>
<td>≥ 2</td>
<td>≥ 2</td>
<td>≥ 2</td>
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<tr>
<td>7</td>
<td>≥ 4</td>
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<td>≥ 3</td>
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<tr>
<td>8</td>
<td>≥ 6</td>
<td>6 – 12</td>
<td>≥ 5</td>
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<tr>
<td>9</td>
<td>≥ 9</td>
<td>6 – 12</td>
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<td>≥ 4</td>
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<td>≥ 9</td>
<td>9 – 12</td>
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<td>≥ 4</td>
<td>≥ 4</td>
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<tr>
<td>12</td>
<td>≥ 18</td>
<td>9 – 12</td>
<td>≥ 7</td>
<td>≥ 4</td>
<td>≥ 4</td>
<td>≥ 4</td>
<td>≥ 4</td>
</tr>
<tr>
<td>13</td>
<td>≥ 18</td>
<td>9 – 12</td>
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<td>≥ 4</td>
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<td>≥ 18</td>
<td>9 – 12</td>
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<td>≥ 18</td>
<td>9 – 12</td>
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<td>≥ 4</td>
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<td>17+</td>
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<td>9 – 12</td>
<td>≥ 7</td>
<td>≥ 4</td>
<td>≥ 4</td>
<td>≥ 4</td>
<td>≥ 4</td>
</tr>
</tbody>
</table>

1. $\text{VO}_{2\text{max}}$ reflects the maximum rate that oxygen can be taken up and utilized by the body during exercise. It is estimated by utilizing the student’s height, weight, and other specific information, which is based on the test option (i.e., One-Mile Run, 20m PACER, or Walk Test) administered. The calculation procedures are found in the Reference Guide on the CDE Physical Fitness Test (PFT) Overview Web page at [http://www.cde.ca.gov/ta/tg/pft/](http://www.cde.ca.gov/ta/tg/pft/).
2. The CDE considers students who exceed the HFZ as meeting the HFZ. For Body Composition, exceeding the HFZ means obtaining a score less than a number on the lower end or right side of the HFZ.
3. To achieve the HFZ, the score must be greater than or equal to the indicated value.

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1. What questions might your students have?
2. What questions might your parents have?
3. Refer to “Key Points” handouts
Changes: FG Aerobic Capacity

* All output / scores for Aerobic Capacity expressed as VO₂ MAX rather than as PACER laps or One Mile Run time

* Calculating Aerobic Capacity requires the input of height and weight
  * Body Mass Index is a very critical factor in one’s ability to perform aerobically.
  * Without BMI many students may be classified incorrectly.
“VO₂ max is the maximum amount of oxygen in milliliters, one can use in one minute per kilogram of body weight. Those who are fit have higher VO₂ max values and can exercise more intensely than those who are not as well conditioned.”

Brian Mac http://www.brianmac.co.uk/vo2max.htm
The one-mile run and PACER aerobic capacity test scores will be converted to estimate a student’s VO₂max.

Height and weight need to be collected for each student.

Three levels of performance standards:

- In the HFZ.
- Needs Improvement – Some Risk.
- Needs Improvement – High Risk.
Practice: Using BMI-AC Lookup Charts

Lookup BMI.
1. Find approximate weight across top of the BMI chart.
2. Find approximate height down the left side of the chart.
3. Find BMI in the cell where the height row and weight column intersect.
4. Write down this number.
5. Since heights and weights are approximate numbers this is an estimation of BMI.
6. Use the estimated BMI or a calculated BMI.
Practice: Using BMI in AC Lookup Charts

Lookup *Aerobic Capacity (VO2max).

1. Find the AC chart for age.
2. Find the est. BMI across the top of the chart.
3. Find approximate number of PACER laps or One Mile Run time down the left side of the chart.
4. Find VO2max in the cell where the laps (time) row and BMI column intersect.
5. Since the BMI and the laps (time) are approximate numbers this is an estimation of VO2max.

*Aerobic Capacity (VO2max) numbers to the left of the bold line are in the Healthy Fitness Zone.
Apply Learning:
SAMPLE Student PFT Data

* In Pairs
* Find Sample Student Data Chart
* Use FG Look Up Tables to find estimated BMI and estimated VO2 max for each SAMPLE student – fill in the blanks
* Save Sample Chart for Discussion
Apply: New CDE Performance Standards

Which students are in new HFZ in both Body Comp and VO2 max?

(if time) Which students are:

* Very Lean (considered in HFZ)?
* Needs Improvement – Some Risk?
* Needs Improvement – High Risk?
Test administration does not change
- The test items are still the same
- The data that is entered in the computer is the same

One BIG difference - motivation for children on the aerobic test cannot be based on how much (time or laps) they have to do.

Children will have to “do their best”

Changes will show up when you print reports – group and individual
<table>
<thead>
<tr>
<th>Activity</th>
<th>Needs Improvement</th>
<th>Healthy Fitness Zone</th>
<th>Number of Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>On how many of the past 7 days did you participate in physical activity for a total of 30-60 minutes, or more, over the course of the day?</td>
<td>4</td>
<td>11/00, 11/00</td>
<td>37</td>
</tr>
<tr>
<td>On how many of the past 7 days did you do exercises that strengthen or tone your muscles?</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>On how many of the past 7 days did you do exercises to loosen up or relax your muscles?</td>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

### Aerobic Capacity

- **Aerobic Capacity**
  - Current: 39.93
  - Past: 37.69
  - Needs Improvement: High Risk

Your score for Aerobic Capacity is based on your time and your BMI. It shows your ability to do activities such as running, cycling, and sports in a high level.

### Pacer Laps

- **RM Laps**
  - Current: 11
  - Past: 11
  - Time: 23.34
  - Time: 25.96

### Abdominal Curl-Up

- **Current:**
- **Past:**
  - 23
  - 15

### Trunk Extension Trunk Lift

- **Current:**
- **Past:**
  - 10
  - 12

### Upper Body Push-Up

- **Current:**
- **Past:**
  - 8
  - 7

### Flexibility Back-Saver Sit and Reach R, L

- **Current:**
- **Past:**
  - 11/00, 11/00

### Percent Body Fat

- **Current:**
- **Past:**
  - 36.28
  - 36.10

### Healthy Fitness Zone for 12-year-old boys

- Aerobic Capacity: 36.70
- Curl-Up: 18 repetitions
- Trunk Lift: 6-12 inches
- Push-up: 1-20 repetitions
- Back-Saver Sit and Reach: At least 6 inches on R & L
- Percent Body Fat: 8-13%

You should work to improve your aerobic capacity. Try to do more physical activity (60 minutes every day). Play active games, sports, or other activities that make you breathe hard. Good aerobic capacity is important in preventing health problems.

To improve your upper-body strength, perform your strength activities include modified push-ups, push-ups and climbing activities. You may need to do more arm exercises.

Your flexibility is in the Healthy Fitness Zone. To maintain your flexibility, stretch slowly 3 or 4 days each week, holding the stretch 20-30 seconds. Don’t forget that you need to stretch all areas of the body.

Your abdominal and trunk strength are both in the Healthy Fitness Zone. To maintain your strength, perform your strength training activities include exercise for each of these areas. Abdominal and trunk exercises should be done at least 3 to 5 days each week.

Joe, your body composition score needs improvement. If it stays at this level you will have a much greater chance of future health problems. You also report low levels of physical activity and this may lead to health problems. To improve, do the following:
- Try to get more activity (at least 60 minutes every day).
- Reduce time spent watching TV or playing video games.
- Eat a healthy diet including fresh fruits and vegetables.
- Reduce your calories from foods with solid fats and added sugars.

Improving your body composition score will improve your health and may help increase other fitness scores.

Joe Jogger
Grade: 5, Age: 12
FITNESSGRAM Elementary School
Instructor(s): Bostick, Sue

- Date: 09/10/2010
- Height: 6’1”
- Weight: 123 lbs
- Date: 09/05/2009
- Height: 4’11”
- Weight: 120 lbs
Partner Activity Directions:

1. Together, pick one of the health-related fitness physical Education Content Standards grade levels (5th, 7th, 9th) to read

2. While reading
   * Underline: What students need to know and be able to do in that grade to demonstrate proficiency in health-related fitness?
   * Highlight: What teachers need to know and be able to provide as instruction resulting in this student learning?
How are kids at your school doing?

1. What percentage (%) of 5\textsuperscript{th} graders in your district passed the 2011 PFT (scored in HFZ on all 6 tests)? Why?
2. What percentage of 7\textsuperscript{th} graders in your district achieved HFZ in Aerobic Capacity in 2011? Why?

If time:
1. What percentage of 5\textsuperscript{th} graders in your district achieved HFZ in Body Composition in 2011?
2. Find the data for your school and compare your predictions with the score achieved. What might be the cause of the differences in scores?
Reflection:
3-2-1 Plus 1

* Think about learning from today
* Fill in:
  3 - Key ideas you heard today....
  2 – Things you want to explore....
  1 – Thing you’re still wondering about....
* Share “wondering with your group
* Record thoughts and learning in the +1 column
* If time share a “Wondering” with room
CA Physical Fitness Test Resources

California Department of Education
* Physical Fitness Test: Overview - Districts and Schools
  * [www.cde.ca.gov/ta/tg/pf](http://www.cde.ca.gov/ta/tg/pf)

Human Kinetics - FITNESSGRAM Testing Materials and Software

Cooper Institute
* FITNESSGRAM Scientific Advisory Board
  * [www.cooperinst.org/fitnessgram](http://www.cooperinst.org/fitnessgram)

Orange County Department of Education
* CA Fitness Testing & FITNESSGRAM Software Training
  * Chris Corliss, Program Coordinator at [ccorliss@ocde.us](mailto:ccorliss@ocde.us)
  * [http://ocde.us/healthyschools](http://ocde.us/healthyschools)