



Massachusetts Tests for Educator Licensure[®]

TEST INFORMATION BOOKLET

22 Physical Education

MA-SG-FLD022-04

Massachusetts Department of Education

Table of Contents

How to Prepare for the Tests.....	1
Overview of the Subject Matter Tests.....	2
Development of the Subject Matter Tests.....	3
Structure of the Content of the Tests.....	3
Description of the Physical Education Test.....	6
Using the Test Objectives.....	6
Developing a Study Outline.....	7
Identifying Resources.....	8
Approaching the Test Items.....	12
Multiple-Choice Item Formats.....	12
Multiple-Choice Item Format One: The Single Test Item.....	12
Multiple-Choice Item Format Two: Test Items with Stimulus Material.....	14
Open-Response Item Formats.....	15
Scoring Open-Response Items.....	16
Sample Test Administration Documents.....	18
Sample Test Directions.....	18
Sample Directions for the Open-Response Item Assignments.....	19
Sample Answer Sheet.....	20
Sample Written Response Booklet.....	22
The Day of the Test Administration.....	26
Preparing for the Test Administration.....	26
Test-Taking Tips.....	26
After the Test Administration.....	28
Score Reporting.....	28
Interpreting Your Score Report.....	28
Physical Education (22).....	29
Test Overview Chart.....	31
Sample Test Items.....	32
Answer Key and Sample Responses.....	38
Test Objectives.....	42
Test Information Booklet Order Form	

Physical Education (Field 22)

Test Overview Chart

Sample Test Items

Answer Key and Sample Responses

Test Objectives

***Test Overview Chart:
Physical Education (22)***

Subareas	Approximate Number of Multiple-Choice Items	Number of Open-Response Items
I. Physical Development and Motor Learning	13–15	2
II. Health-Related Physical Fitness	13–15	
III. Movement and Sport Activities	24–26	
IV. Cognitive, Social, and Personal Development	7–9	
V. Professional Knowledge and the Physical Education Program	18–20	

The Physical Education test is designed to assess the candidate's knowledge of the subject matter required for the Massachusetts Physical Education Teacher certificate. This subject matter knowledge is delineated in the Massachusetts Department of Education *Regulations for the Certification of Educational Personnel in Massachusetts* (April 1995), 603 C.M.R. 7.12, "Competencies for Specific Certificates," Section (18) (a) 2. "Competency I: Subject Matter Knowledge."

The Physical Education test assesses the candidate's proficiency and depth of understanding of the subject at the level required for a baccalaureate major, according to Massachusetts standards. Candidates are typically nearing completion of or have completed their undergraduate work when they take the test.

The multiple-choice items on the test cover the subareas as indicated in the chart above. The open-response items may relate to topics covered in any of the subareas and will typically require breadth of understanding of the physical education field and the ability to relate concepts from different aspects of the field. Responses to the open-response items are expected to be appropriate and accurate in the application of subject knowledge, to provide high-quality and relevant supporting evidence, and to demonstrate a soundness of argument and understanding of the physical education field.

Sample Test Items:
Physical Education (22)

1. A major function of the respiratory system is to:
 - A. metabolize excess carbon dioxide accumulated in the lungs.
 - B. remove carbon dioxide from the bloodstream.
 - C. deliver carbon dioxide to the bloodstream.
 - D. store excess carbon dioxide produced by the body.
2. Compared with a healthy high school student, a healthy elementary student's potential for sustained vigorous motor tasks is more limited primarily because of a:
 - A. lower rate of energy metabolism.
 - B. higher stroke volume.
 - C. higher ratio of body fat to lean body mass.
 - D. lower maximum capacity for oxygen uptake.

3. Use the information below to answer the question that follows.

A ninth grader who wishes to improve cardiovascular endurance and decrease body fat has devised the following personal exercise plan.

Exercise Plan

Frequency of Workout: four days per week

Intensity of Workout: moderate

Workout Components:

1. Warm-up (5 minutes): brisk walking or jogging in place followed by static stretching
2. Aerobic workout (15 minutes): bicycling or swimming
3. Cool-down (5 minutes): walking (in or out of water) followed by stretching and flexibility exercises

Which of the following changes would be most appropriate to suggest for increasing the effectiveness of this fitness plan?

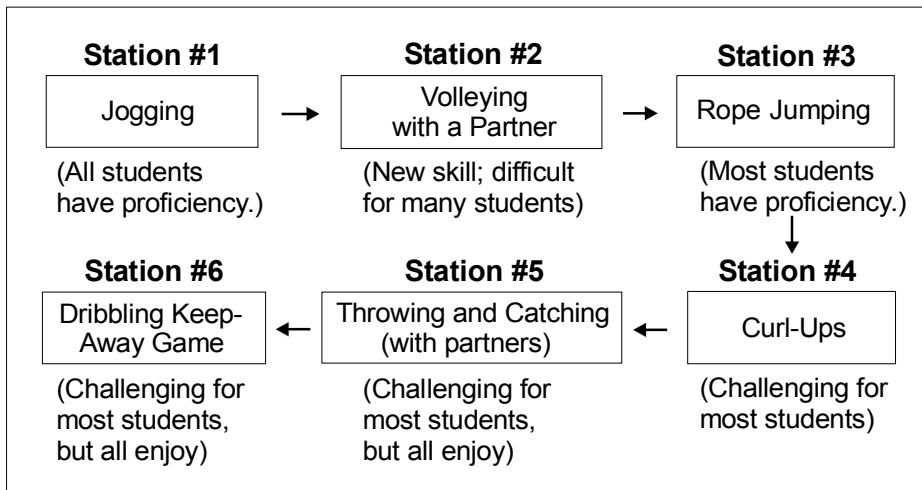
- A. increasing the intensity and duration of the entire workout
- B. increasing the intensity and decreasing the duration of the aerobic portion of the workout
- C. increasing the frequency of the entire workout
- D. increasing the duration of the aerobic portion of the workout

4. Which of the following weight-training programs is likely to be most effective for developing muscle strength and bulk?
- A. three sets of ten repetitions with maximum weight, performed three days a week
 - B. 15 repetitions with moderate weight, performed daily
 - C. two repetitions with maximum weight, performed five days a week
 - D. three sets of 20–25 repetitions with light weight, performed four days a week
5. A tenth-grade physical education class is working on outdoor adventure activities that require understanding and application of static and dynamic balance (e.g., balancing on a small platform, walking across a log). Which of the following biomechanical concepts would be most appropriate to introduce as part of this unit?
- A. torque
 - B. angular momentum
 - C. center of gravity
 - D. centripetal force
6. Which of the following activities would be most appropriate for helping children in the early elementary grades integrate eye-hand coordination and rhythmic movement skills?
- A. bouncing a ball in time to a recording with an accentuated beat
 - B. imitating "clap and snap" patterns modeled by the teacher
 - C. improvising creative movement sequences in response to a recording of environmental sounds
 - D. moving through a simple obstacle course in time to a cadence or pulsing beat
7. Softball players assume a defensive stance by widening their base of support and crouching. This position increases their stability primarily by:
- A. creating torque about the body's major joints.
 - B. lowering the body's center of mass.
 - C. reducing the stress in major muscle groups.
 - D. creating symmetry about the body's central axis.

8. Which of the following is most likely to lead to performance anxiety among physical education students?
- A. a situation in which a low-skills student tries to improve his or her individual abilities
 - B. a situation in which high-skills students compete against one another
 - C. a situation in which the abilities of each student are compared with those of all other students
 - D. a situation in which students are responsible for determining their own performance goals
9. A physical education teacher's classes include students who have various special needs. Which of the following guidelines should the teacher follow to ensure that the needs of these students are being met?
- I. Use a variety of methods to demonstrate skills, activities, and the use of equipment, and check frequently for the students' understanding.
 - II. To the extent possible, provide the students with the same skills-development opportunities as those provided to peers who do not have special needs.
 - III. Emphasize group activities over individual and dual activities to ensure that the students interact with peers to the maximum extent possible.
 - IV. Provide the students with frequent opportunities to engage in unstructured free play to promote autonomy and independent thinking.
- A. I and II only
 - B. II and IV only
 - C. I and III only
 - D. III and IV only

10. Use the information below to answer the question that follows.

A teacher sets up the following stations to use with a physical education class.



This arrangement of stations would be most appropriate for achieving balance between which two aspects of physical education?

- A. development of game strategies and concepts of fair play
- B. improvement of cooperative skills and integration of motor skills
- C. development of body-awareness and perceptual-awareness skills
- D. improvement of game-related skills and personal fitness levels

11. **Use the information below to complete the exercise that follows.**

Most sports are composed of component skills that must be developed and integrated in order to play the sport successfully. An essential part of most sports is the ability to control and move objects with the body.

In an essay, select a sport and describe an appropriate process for teaching specific skills to students who are new to the sport. In your essay:

- describe the elements of proper form for specific skills for the sport;
- describe a sequence of activities for developing these skills; and
- explain why these activities and their sequence would be appropriate for developing the targeted skills for children who are new to the sport.

Answer Key and Sample Responses: Physical Education (22)

Question Number	Correct Response	Test Objective*
1.	B	Understand components and functions of the major body systems.
2.	D	Understand sequences and characteristics of motor development.
3.	D	Understand the development and maintenance of cardiorespiratory endurance.
4.	A	Understand the development and maintenance of muscular strength and endurance.
5.	C	Understand principles of biomechanics and their application to movement activities.
6.	A	Understand principles and activities for developing rhythmic and dance skills.
7.	B	Understand techniques, skills, strategies, rules, etiquette, and safety practices for team sports.
8.	C	Understand cognitive, social, and personal development in relation to physical education.
9.	A	Understand instructional strategies in physical education.
10.	D	Understand the management of physical education environments and programs.

*Each test objective is clarified and further described by a descriptive statement, which provides examples of the types of knowledge and skills covered by the test objective. The test objectives for the Physical Education test begin on page 42.

The sample response below reflects a weak knowledge and understanding of the subject matter.

Softball is a wonderful and exciting game that is popular among countless people of all ages. An essential part of softball is the ability to control the ball with a bat or a glove. These are the component skills to be successful.

To be able to play softball well requires a great deal of skill. This is especially the case when playing in the field on defense. Catching the ball is a big part of the game. Players wear leather gloves to protect their hands and make it easier to catch balls hit by batters. The catcher also wears a face mask for further protection.

As noted, batting is a central part of the game too. It also requires a great deal of skill. Because each team has nine or ten people, most players bat only three or four times in an average game. Batters must learn to hit the ball really far.

I think that pitchers throw the ball underhand rather than overhand as in baseball. While softball pitchers can't throw as hard as baseball pitchers do, many are nevertheless able to pitch fastballs.

In sum, softball is an ideal sport for young people who are interested in developing a variety of athletic abilities from fielding, to hitting, to pitching. But each of these skills requires practice and preparation.

The sample response below reflects a strong knowledge and understanding of the subject matter.

Basketball is a good example of a sport that many students have watched without realizing the complexities of the game. Basketball is composed of four object-control skill areas-- shooting, dribbling, passing, and catching. These ball-handling skills must be learned and mastered independently, then integrated with the locomotor skills of running, jumping, and pivoting.

Instruction should emphasize the position of the body to the ball. In basketball, the shoulders must squarely face the direction to which the athlete intends to shoot, dribble, or pass. Also, the students must learn that the ball should be handled not with the palm of the hand, but with the top half of the fingers. The two techniques of "squaring up" and "using a light touch" ensure that the ball can be directed with the most control. As the students become comfortable with handling a basketball, they should advance to moving the ball by dribbling it while walking or running, catching the ball and pivoting to pass or shoot, and finally demonstrating all of these skills in one continuous motion.

Of the three skill areas, shooting is the most difficult to learn. Not only does shooting require a knowledge of proper form, but the students must also get the ball into the net. The competent shooter always starts the shot with the upper arm parallel to the floor, the elbow bent to form an L, and the ball resting lightly on the tips of the fingers. The player finishes the shot with the wrist softly flexed downward and the index and middle fingers of the shooting hand pointing into the basket. Becoming successful at shooting requires time, patience and a lot of practice.

A sequence of physical education activities should provide practice in the acquisition of object-control skills in tandem with at least one of the locomotor skills. In the ideal situation, each student should have a ball so that maximum time on task is achieved. Additionally, the activities must be adapted to the developmental level of the students. If I were teaching basketball to fourth and fifth graders, for example, a typical instructional period might include this sequence of activities: warming up by dribbling the ball up and down the court at a walk, a trot, and a run; chest-passing the ball to a partner (this activity can be made more interesting by seeing how many passes can be completed between partners in a sixty-second period of time); passing the ball back and forth between partners while both are trotting down the court; dribbling around cones spaced approximately fifteen feet apart; shooting the ball to a partner standing approximately six feet away; shooting the ball in turn at the basket from a distance close enough so that each student can hit the backboard; shooting the ball with a partner that catches the ball on the rebound. Once the students become more proficient in executing the various skills, the instructional period could end with a short game. Throughout the instructional period, corrective feedback is critical. If successful learning is to be optimized, students should not be allowed to perform any of the skills incorrectly. The teacher must keep moving between the students, providing positive reinforcement to those that are shooting, dribbling, and passing the ball properly, and consistently correcting those students who are making errors.

(continued on next page)

(continued from previous page)

The sequence of activities outlined above meets several criteria for effectively developing and integrating the skills of basketball for nine and ten year olds. The drills provide an opportunity to learn the skills in isolation first and then combine the object-control skills with locomotor skills so that ball handling is developed in a situation more like the one that the students will experience under the pressure of a real game. All four of the object-control skills are being developed simultaneously so that the students are acquiring knowledge of the whole game of basketball. The activities are varied so that the students will remain motivated and eager to learn. There are plenty of opportunities for corrective feedback so that the teacher can interact with students to provide a positive learning experience.

Test Objectives:
Physical Education (22)

SUBAREAS:

PHYSICAL DEVELOPMENT AND MOTOR LEARNING
HEALTH-RELATED PHYSICAL FITNESS
MOVEMENT AND SPORT ACTIVITIES
COGNITIVE, SOCIAL, AND PERSONAL DEVELOPMENT
PROFESSIONAL KNOWLEDGE AND THE PHYSICAL EDUCATION PROGRAM

PHYSICAL DEVELOPMENT AND MOTOR LEARNING

0001 Understand components and functions of the major body systems.

For example: the general organization of the skeletal, muscular, circulatory, respiratory, and nervous systems; components, functions, actions, and common disorders of the systems; and physiological processes involving the systems.

0002 Understand physical growth and development.

For example: phases and characteristics of physical development during infancy, childhood, adolescence, and adulthood; developmental issues during the phases of human growth; and factors that influence physical growth and development.

0003 Understand sequences and characteristics of motor development.

For example: sequences and characteristics of motor skill development during infancy, childhood, adolescence, and adulthood; the relationship of motor development to physical, cognitive, psychosocial, and emotional development; and factors that influence motor development and performance.

0004 Understand principles of perceptual-motor development.

For example: visual, auditory, tactile, and kinesthetic discriminations and their relationships to motor development and performance; and perceptual-motor development activities, materials, and equipment that are appropriate for students at various developmental levels.

0005 Understand principles of motor learning.

For example: theories and models of motor learning; principles of practice, retention, readiness, feedback, observational learning, and transfer of learning as they relate to motor skill acquisition; methods for promoting recognition and use of similar movement concepts and elements in a variety of skills; techniques for detecting errors in motor performance and providing cues and corrective feedback; and techniques for modifying sports and games to promote the use of combinations of motor skills.

HEALTH-RELATED PHYSICAL FITNESS

0006 Understand components of physical fitness and principles of training.

For example: basic components of physical fitness (e.g., strength, endurance, flexibility) and principles of training (e.g., overload, specificity); aerobic versus anaerobic conditioning; short- and long-term effects of physical activity on the cardiorespiratory, muscular, skeletal, neural, and endocrine systems; the interactions among these systems in producing movement; energy systems used during exercise; factors that affect physical fitness and performance (e.g., substance abuse, nutrition); and potential health risks and injury prevention techniques associated with exercise and training (e.g., using warm-up and cool-down exercises).

0007 Understand the development and maintenance of cardiorespiratory endurance.

For example: principles and activities for developing aerobic endurance; techniques for assessing and monitoring heart rate and endurance levels; and appropriate aerobic activities for various developmental levels and purposes (e.g., walking, running, cycling, step aerobics).

0008 Understand the development and maintenance of muscular strength and endurance.

For example: principles and activities for developing strength and endurance in various muscle groups; principles, safety practices, and equipment for progressive resistance exercise (e.g., weight training, circuit training); techniques for assessing muscular strength and endurance; and appropriate activities for various developmental levels and purposes (e.g., body support activities, rope jumping, calisthenics).

0009 Understand the development and maintenance of flexibility.

For example: principles and activities for developing flexibility in the major joints of the body; techniques for assessing flexibility; and appropriate activities for various developmental levels and purposes (e.g., bending, stretching, twisting).

0010 Understand how to develop and maintain levels of body composition that promote good health.

For example: principles of nutrition and weight control; relationships between physical activity and body composition; ways in which nutrition and eating habits may affect physical development and health; relationships between body type and body composition; techniques for assessing body composition; and appropriate activities for developing and maintaining levels of body composition that promote good health.

MOVEMENT AND SPORT ACTIVITIES

0011 Understand principles of biomechanics and their application to movement activities.

For example: principles related to motion, stability and balance, force projection and absorption, buoyancy, rotation, speed, acceleration, and other biomechanical concepts; and the application of these principles in the context of various movement activities.

0012 Understand fundamental movement concepts and skills.

For example: concepts of time, space, direction, speed, and force; techniques for promoting students' application of these movement concepts through exploration of shapes, levels, and pathways; body awareness; and activities that are appropriate for various purposes and developmental levels.

0013 Understand principles and activities for developing locomotor, nonlocomotor, and body control skills.

For example: types and characteristics of locomotor, nonlocomotor, and body control skills (e.g., running, jumping, balancing, lifting, pushing, pulling, falling-landing-rolling); techniques for assessing these skills; developmentally appropriate activities for promoting these skills; and strategies for integrating these skills in various combinations and activities (e.g., jump and twist, balance at different levels).

0014 Understand principles and activities for developing object control skills.

For example: throwing, catching, dribbling, kicking, and striking skills; combinations of object control skills (e.g., catch and throw); techniques for assessing these skills; developmentally appropriate activities for promoting these skills; and strategies for integrating locomotor, nonlocomotor, and object control skills (e.g., run and catch, pivot and throw).

0015 Understand principles and activities for developing rhythmic and dance skills.

For example: basic elements of rhythm; appropriate activities for rhythmic skill development; techniques for assessing rhythmic skills; strategies for integrating rhythmic skills with locomotor, nonlocomotor, body control, and object control skills; and techniques, sequences, and skills for various forms of dance (e.g., folk, social, line, creative).

0016 Understand techniques, skills, organizational strategies, and safety practices for tumbling and gymnastics.

For example: skills, activities, skill progressions, organizational strategies, safety practices, and proper use of equipment for tumbling and gymnastics; techniques for assessing tumbling and gymnastic skills; and appropriate activities for various developmental levels and purposes.

0017 Understand techniques, skills, organizational strategies, and safety practices for aquatics.

For example: techniques, skill progressions, safety practices, organizational strategies, emergency pool procedures, and proper use of equipment; techniques for assessing aquatic skills; and activities appropriate for various developmental levels and purposes (e.g., learn-to-swim programs, diving, water fitness, water polo).

0018 Understand techniques, skills, strategies, rules, etiquette, and safety practices for individual and dual sports, recreational activities, and outdoor pursuits.

For example: techniques, skill progressions, strategies, rules, etiquette, safety practices, and types and uses of equipment for individual and dual sports (e.g., bowling, racquet sports, combative sports), recreational activities, and outdoor pursuits (e.g., walking, cycling, skiing); techniques for assessing skills in these activities; and activities appropriate for various developmental levels and purposes.

0019 Understand techniques, skills, strategies, rules, etiquette, and safety practices for team sports.

For example: techniques, skill progressions, strategies, rules, etiquette, safety practices, equipment, and types of lead-up activities for team sports (e.g., volleyball, team handball, football, floor hockey, track and field); techniques for assessing skills in these sports; and activities appropriate for various developmental levels and purposes.

COGNITIVE, SOCIAL, AND PERSONAL DEVELOPMENT

0020 Understand cognitive, social, and personal development in relation to physical education.

For example: characteristics of cognitive, psychosocial, and emotional development during childhood and adolescence; the influence of peers and others in determining social attitudes and behaviors; the influence of expectations related to gender, physical appearance, and skill level on the development of self-image; causes and effects of anxiety related to performance; stress management principles and strategies; relationships between physical activity and the development of personal identity and psychological well-being; and strategies for promoting creative expression through sport and dance.

0021 Understand the role of physical education in the development of higher-order thinking and evaluation skills.

For example: techniques and activities for developing problem-solving, decision-making, self-assessment, goal-setting, and monitoring skills in relation to physical activity and health-related lifestyle decisions; and techniques and activities to promote critical evaluation of claims and advertisements about commercial products (e.g., ergogenic aids, fitness and weight-control products and programs).

0022 Understand the role of physical education in the development of positive personal and social behaviors and traits.

For example: the role of physical education in fostering enjoyment of aesthetic and creative aspects of skilled performance and in respecting the physical and performance limitations of self and others; potential social-cultural benefits of participation in physical activities (e.g., advantages of diverse talent to team membership, awareness of how different cultures view various types of physical activities); ways in which physical education activities can promote positive personal behaviors and traits (e.g., confidence, honesty, self-discipline, perseverance, creativity); and ways in which physical education activities can promote positive social behaviors and traits (e.g., sportsmanship, teamwork, leadership, respect for diversity, responsibility).

PROFESSIONAL KNOWLEDGE AND THE PHYSICAL EDUCATION PROGRAM

0023 Understand the history and philosophies of physical education.

For example: significant events in the historical development of physical education; past and present philosophies of physical education and their effects on the goals, scope, and practices of physical education programs; current issues and trends that affect the field; and contributions of noteworthy physical educators.

0024 Understand the structure, goals, and purposes of physical education programs.

For example: the structure, organization, goals, and purposes of physical education programs; procedures and components of curriculum development; appropriate scope and sequence in the physical education curriculum; criteria and procedures for evaluating physical education programs; ways to adapt or modify physical education programs based on program evaluation results; relationships between physical education and other areas of instruction; ways to integrate physical education into the overall school curriculum; and methods for communicating and maintaining positive relations with students, families, and community members.

0025 Understand instructional strategies in physical education.

For example: physical education instructional methods and their characteristics; appropriate instructional methods and activities for various objectives, situations, and developmental levels; appropriate methods of instruction for students with special needs and students from diverse cultural or linguistic backgrounds; techniques for modifying rules, equipment, and settings to conform to the needs of students; and strategies for consulting and collaborating with teachers, special education personnel, administrators, and other school personnel.

0026 Understand physical education assessment methods and instruments.

For example: types, characteristics, advantages, and limitations of various assessment methods and instruments (e.g., observational checklists, performance assessments, portfolios, journals, peer assessments, standardized tests); sources of standards of physical fitness; techniques for selecting, constructing, adapting, and implementing formal and informal assessments; appropriate assessment methods for various objectives and situations; the use of technology for analysis of student fitness and performance; the development of exercise prescriptions based on assessment results; and appropriate interpretation and communication of assessment results.

0027 Understand the management of physical education environments and programs.

For example: techniques for organizing and managing physical education classes and environments (e.g., classroom, gym, outdoor areas); benefits and limitations of various management and discipline practices; logistics related to the availability and use of facilities, supplies, equipment, staff, and other resources; financial issues related to physical education programs; care and maintenance procedures for facilities and equipment; and procedures for maintaining a safe physical education environment.

0028 Understand principles and procedures of injury prevention and emergency first-aid assistance.

For example: types and characteristics of injuries common to physical activities; principles and techniques of injury care and prevention; purposes and procedures for CPR; first-aid procedures related to the control of bleeding, shock, and other emergency situations; and safety precautions in administering emergency care procedures.

0029 Understand legal and ethical issues related to physical education programs.

For example: legal requirements and responsibilities associated with teaching physical education; issues related to lifeguarding and pool safety; issues related to supervision, safety, liability, and negligence; state and federal laws and guidelines regarding gender equity, special education, religious issues, and other aspects of students' rights; and the application of ethical issues and guidelines in various physical education situations.