



California
Subject
Examinations for
Teachers®

TEST GUIDE

PHYSICAL EDUCATION SUBTEST I

Sample Questions and Responses
and Scoring Information

Copyright © 2004 by National Evaluation Systems, Inc. (NES®)

"California Subject Examinations for Teachers," "CSET," and the "CSET" logo are registered trademarks of the California Commission on Teacher Credentialing and National Evaluation Systems, Inc. (NES®).

"NES®" and its logo are registered trademarks of National Evaluation Systems, Inc.™

CS-TG-QR129X-01

Sample Test Questions for CSET: Physical Education Subtest I

Below is a set of multiple-choice questions and constructed-response questions that are similar to the questions you will see on Subtest I of CSET: Physical Education. You are encouraged to respond to the questions without looking at the responses provided in the next section. Record your responses on a sheet of paper and compare them with the provided responses.

1. Agility consists primarily of the ability to move:
 - A. quickly and efficiently.
 - B. explosively.
 - C. in repeated steps.
 - D. rhythmically.

2. A kindergartner avoids the jungle gym, a wooden climbing structure with slides, ladders, and grab bars. The child cannot "figure out what to hold onto" or "pull up on" to climb the structure. This type of confusion is characteristic of an impaired or underdeveloped ability to:
 - A. maintain eye fixation on an object in one's field of vision.
 - B. distinguish pertinent objects from other stimuli in one's field of vision.
 - C. recall the visual sequence of a set of objects.
 - D. maintain directional awareness when following a pathway.

3. As children grow from toddlers to preschoolers, they develop locomotor skills such as walking on a low balance beam or along a curved line or dashing in one direction and then another while continuing to run. Which of the following best describes the physical change that typically occurs between the ages of three and five that allows children to perform such movements?
 - A. They are able to narrow the base of support on which they walk and move.
 - B. Their heads grow to take up more of their total body weight, enhancing balance.
 - C. They are able to step in marked time, bringing one foot alongside the other while moving.
 - D. Their center of gravity becomes higher, moving from below the navel to above the navel.

Use the information below to answer the two questions that follow.

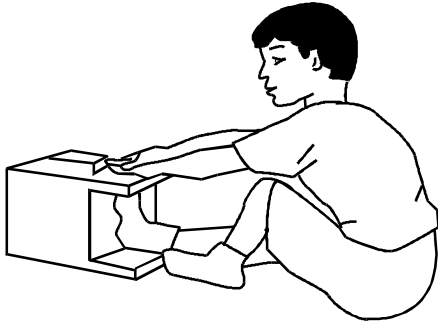
In the field of motor learning, researchers have investigated the effects of different practice regimens on motor skill acquisition. In one influential study conducted by J. B. Shea and R. L. Morgan, which has been replicated many times, two groups of subjects learned the same unfamiliar motor skill. All practice conditions were the same except the order in which the tasks were practiced. One group used a repetitive, or blocked, order and completed all practice trials for one motor task before moving on to the next task. The other group practiced component tasks of the skill in random order, switching among related motor tasks throughout the practice session.

4. Which of the following reflects a general consensus among researchers regarding practice and motor skill acquisition as a result of the experiment described and subsequent replications?
 - A. Random practice leads to significant interference between motor tasks, resulting in poorer acquisition performance among participants; blocked-practice participants learn a skill more quickly.
 - B. Participants who use random practice or blocked practice under the same conditions demonstrate similar levels of skill performance within the same time, indicating no relative benefit to either regimen.
 - C. The blocked order leads to significant boredom in completing tasks, resulting in poorer acquisition performance among participants; random-practice participants learn a skill more quickly.
 - D. Approximately equal numbers of participants from both groups demonstrate poor and superior skill performance following practice under the same conditions, so generalizations cannot be made.
5. A separate focus of the studies on random practice and blocked practice involved conducting retention tests with participants ten minutes after completing practice and then a few days after completing practice. Both tests showed that random-practice groups performed better on retention items. These participants retained a higher level of performance than blocked-practice participants. The primary reason for this finding is that random practice:
 - A. encourages participants to self-impose a sequence or drill-type repetition in learning each motor task, thereby consciously committing each task to memory.
 - B. occurs during the cognitive phase of motor learning, in which participants consciously attempt to evaluate morphology, form, and environment in terms of required motor tasks.
 - C. encourages participants to compare and contrast strategies and techniques for performing motor tasks, making learning each task more distinctive and memorable.
 - D. occurs during the autonomous phase of motor learning, in which component motor tasks can be performed without concentrated attention but the entire skill is intrinsically retained.

6. In developing a motor task analysis of a particular skill, the most important goal should be to:
- A. define the purpose of the skill.
 - B. break the skill into progressive steps.
 - C. transfer the skill to other activities.
 - D. recognize mastery components of the skill.
7. When considering the influences of culture and environment on motor learning, it is most important to realize that:
- A. differences in performance do not always reflect differences in development.
 - B. culture and environment together determine the course of motor development.
 - C. motor learning is a genetically programmed developmental process.
 - D. environmental factors influence motor learning only during a brief developmental period.
8. Which of the following is an important factor in understanding how disabilities such as cerebral palsy and spina bifida/hydrocephalus affect children's motor learning?
- A. Students with these conditions may have cognitive as well as physical challenges to learning.
 - B. These conditions generally result in delayed but not impaired motor development.
 - C. Students with these conditions can generally learn new motor skills only through extensive repetition.
 - D. These conditions often result in a lack of motivation to learn new motor skills.
9. To ensure smooth, controlled movement under load, a muscle must be able to make fine adjustments to the amount of force produced during a contraction. These fine adjustments are accomplished primarily by varying the:
- A. number of motor units recruited during a contraction.
 - B. duration of the contraction of motor units.
 - C. amount of oxygen that is available to individual muscle fibers.
 - D. amount of force produced by each muscle fiber during a contraction.

10. When throwing a flying disk, snapping the wrist sharply at the end of the throw imparts spin to the disk. Which of the following best explains how this spin helps increase the distance and accuracy of the throw?
- A. The spinning disk creates pockets of air turbulence at the top and bottom of its surface, which provides lift.
 - B. The kinetic energy of the spinning disk imparts an additional horizontal force to the disk, which helps propel it forward during flight.
 - C. The spinning disk acts as a gyroscope, which increases its stability as it travels through the air.
 - D. The surface of the disk when spinning has a lower coefficient of friction, which reduces drag between the disk and the air.
11. In swimming, maintaining a straight body with the legs near the surface is most effective in:
- A. increasing the kinetic energy of the swimmer.
 - B. reducing the effect of gravity on the swimmer.
 - C. increasing the buoyancy of the swimmer.
 - D. reducing the drag from the water on the swimmer.
12. Regular participation in resistance weight training is most likely to benefit the body by:
- A. causing a significant reduction in resting heart rate.
 - B. improving the range of motion of the joints.
 - C. increasing the density of the bones.
 - D. increasing the level of low-density lipoproteins (LDLs).
13. Which of the following best explains the importance of effective stress management practices for lifelong wellness?
- A. Exercising while under stress tends to magnify the symptoms of stress.
 - B. Accidental injury is more likely to occur in individuals experiencing high levels of stress.
 - C. Hormones released by the body while under stress interfere with the absorption of essential nutrients.
 - D. Elevated stress levels over time are associated with increased risk of cardiovascular disease.

14. Use the illustration below to answer the question that follows.



In an assessment of a student's health-related physical fitness, the back-saver sit and reach, shown above, is used to measure:

- A. trunk flexibility.
 - B. abdominal strength.
 - C. hamstring flexibility.
 - D. upper back strength.
15. Which of the following strategies is an appropriate application of the physiological principle of specificity in relation to planning physical education activities?
- A. matching class activities to specific interests of individual students or groups of students
 - B. engaging students in warm-up exercises that target the muscle groups or energy systems that will be utilized in class activities
 - C. increasing the duration and intensity of class activities at specific intervals
 - D. ensuring that activities selected for inclusion in class are appropriate for the developmental and age levels of the students

16. Use the information below to complete the assignment that follows.

A fourth-grade physical education class includes the following goal.

Students will demonstrate the underhand roll used in bowling or bocce.

Using your knowledge of growth, motor development, and motor learning, write a response in which you:

- identify one principle of motor learning that could be used to promote students' acquisition of this motor skill;
- describe one way to apply that principle of motor learning to the situation described; and
- explain why you believe that strategy would be effective in promoting students' ability to demonstrate proficiency in this motor skill.

17. For this assignment, you will see a video recording of a student performing an exercise. The recording will be repeated three times with a two-minute pause afterward for you to make notes. This sequence will be repeated throughout the duration of the video in order to give you ample opportunity to view and evaluate the content presented. Based on the content presented on the video recording, write a response to the assignment below. Your response must be written on the Assignment 1 Response Sheet in Answer Document G.

(The examinee sees a video recording of a student performing an exercise. The following three images are taken from the video recording of the student performing the exercise to be referenced when responding to the constructed-response question below.)





Using your knowledge of movement analysis, exercise physiology, biomechanics, and factors affecting physical performance, write a response in which you:

1. Analyze this student's performance of the exercise in terms of:
 - the fitness goals or outcomes typically associated with this exercise;
 - the biomechanics related to efficient and/or safe performance of this exercise; and
 - the appropriateness of this exercise for use in a physical education program.
2. Describe an additional or alternative exercise for this student that would address the same fitness goals in a biomechanically efficient and appropriate way, and explain why the additional or alternative exercise would be beneficial.

Annotated Responses to Sample Multiple-Choice Questions for CSET: Physical Education Subtest I

Growth, Motor Development, and Motor Learning

1. **Correct Response: A.** (SMR Code: 2.1) Agility, a motor fitness attribute, refers to the ability of an individual to move rapidly and efficiently in different directions. Agility is the skill-related fitness component that involves accurately changing the direction of the body's movement in space in a quick and nimble manner, an important asset in many movement activities.
2. **Correct Response: B.** (SMR Code: 2.2) The kindergartner's difficulty with discerning which features of the jungle gym would help him or her climb is characteristic of a visual deficit in discriminating among objects in one's field of vision. In this scenario, the confusion and hesitation the student experiences in identifying pertinent climbing parts of the play structure is an example of how an impairment in visual discrimination might be manifested in a young child on the playground.
3. **Correct Response: A.** (SMR Code: 2.3) Walking on a low balance beam or along a curved line or dashing in different directions are motor tasks that require a child to place one foot in front of the other in order to travel forward in a narrow path. Between the ages of three and five, children gain significant physical strength and coordination and develop the ability to maintain balance while narrowing their base of support (legs and feet).
4. **Correct Response: A.** (SMR Code: 2.4) In Shea and Morgan's laboratory study of the relationship between practice conditions and motor skill acquisition, as well as in subsequent replications by other researchers, participants who used a blocked-practice model, or repetitive practice drills, acquired motor tasks more quickly than participants who used a random-practice model with the same tasks. Under blocked-practice conditions, all practice trials on one of the tasks were completed before another task was attempted. In contrast, the other group practiced the tasks in random order, switching among tasks at will. The random order resulted in considerably more contextual interference between tasks in comparison with the blocked order. Thus, the random-practice regimen resulted in much poorer acquisition performance than the blocked-practice regimen.
5. **Correct Response: C.** (SMR Code: 2.4) A somewhat surprising finding of the Shea and Morgan investigation into the effects of practice regimens on motor skill acquisition involved the results of retention tests conducted on the two groups of participants. Tests conducted both minutes and days after the practice trials showed that the random-practice group performed better on retention items than the blocked-practice group. The same practice conditions that led to poor acquisition in motor performance also led to very good retention of motor tasks. The most probable explanation for this result is that random practice encourages a learner to compare and contrast strategies used for performing different motor tasks. Switching between tasks provides the learner with better contrastive knowledge than drill-type practice, and this contrast makes each task more distinctive and memorable, resulting in better overall retention.
6. **Correct Response: B.** (SMR Code: 2.5) In motor task analysis, the first step and the most important goal of the analysis is to break the motor skill into progressive steps; each step should involve a discrete skill. Only then can the skill be analyzed in terms of its component parts, an appropriate developmental progression in which to teach the skill, and the fitness attributes needed to achieve the skill.

7. **Correct Response: A.** (SMR Code: 2.6) An important aspect of teaching physical education is understanding the influence of culture and environment on motor development and learning. Differences among students in motor performance are not due solely to biological factors related to motor, physical, and cognitive development; they also reflect influences related to cultural and environmental factors. Different cultural groups may value different traditions, attitudes, and beliefs in relation to physical activity, and these factors influence motor learning. Differences in student performance also reflect the influence of environmental factors such as economic circumstances, family situation, and previous experience with recreational or sport activities.
8. **Correct Response: A.** (SMR Code: 2.7) Cerebral palsy and spina bifida/hydrocephalus are neurological disorders; students with these conditions often have cognitive impairments in addition to physical or motor impairments. With these lifelong conditions, attainment of milestones in motor development is generally delayed and motor control and coordination may be significantly impaired.

The Science of Human Movement

9. **Correct Response: A.** (SMR Code: 3.1) To perform work during physical activity, muscles contract, producing force that supports the body or allows movement. To control movement under load, skeletal muscles recruit motor units during a contraction. As the level of force demanded of a muscle increases, additional motor units are recruited, and more force is produced by the activation of more muscle fibers.
10. **Correct Response: C.** (SMR Code: 3.2) When a flying disk or Frisbee® is released with a wrist snap, it spins rapidly, acting as a gyroscope and maintaining its original plane of rotation, no matter which way it is spinning. The resulting stabilization of the disk keeps it level and aloft longer, which helps increase the distance and accuracy of a throw.
11. **Correct Response: D.** (SMR Code: 3.3) Maintaining a streamlined or foil shape while swimming reduces the resistance of the water or drag on the moving body. Because the medium of water is denser than air, resistance to movement is significant. Swimming in a level, horizontal body position with legs straight and near the surface is the most efficient biomechanical form for maximizing speed and minimizing the drag forces of the water on the body in motion.
12. **Correct Response: C.** (SMR Code: 3.5) Regular participation in resistance weight training involves progressively increasing the workload or resistance against muscles in order to increase muscular strength. Resistance weight training also places active stress on the skeletal system, especially the weight-bearing long bones. One beneficial adaptation to this type of training is an increase in the density of the long bones, due to an increase in the efficiency of mineral deposition into the bone matrix.
13. **Correct Response: D.** (SMR Code: 3.6) Many large-scale medical studies, including those conducted by the American Heart Association and the Center for Disease Control and Prevention's National Center for Chronic Disease Prevention and Health Promotion, have highlighted the link between high stress levels and the development of cardiovascular disease. Stress management practices such as making healthy lifestyle choices, getting adequate sleep and rest, and eating a varied and nutritionally balanced diet help reduce the risk of cardiovascular disease. Participation in regular physical activity is associated with an improved sense of well-being and mental health and is an important way to cope more effectively with the stressors of everyday life.

14. **Correct Response: C.** (SMR Code: 3.7) The back-saver sit and reach is a health-related fitness test used to measure primarily the flexibility of the hamstring muscles, one side at a time. For this fitness assessment, a student bends one knee, extends the other leg fully with the foot flat against the face of the box, reaches forward with both arms, palms down, along a measuring scale on the top of the box, and holds the position briefly. The distance of the reach indicates the level of hamstring flexibility, adjusted for age and gender.

15. **Correct Response: B.** (SMR Code: 3.10) The physiological principle of specificity refers to matching specific physical activity to improve a component of health-related fitness or address a personal fitness goal, e.g., using arm curls to increase the strength of the biceps. Only response B, engaging students in warm-up exercises that target the muscle groups or energy systems that will be used in class activities, reflects an appropriate application of specificity in relation to physical education planning.

Examples of Responses to Sample Constructed-Response Questions for CSET: Physical Education Subtest I

Growth, Motor Development, and Motor Learning

Question #16 (Strong Response)

A motor learning principle that could be used to promote students' acquisition of this motor skill is transfer, that is, helping the students draw on previous experiences when learning new skills.

By 4th grade, children usually have developed some control with rolling balls. They have learned about opposition and know that the nondominant foot should be in front and carry the weight at the end of the arm swing. To transfer the basic underhand motion to a specific environment, learners need opportunities to practice in that environment.

To transfer to bocce, the students should practice with a somewhat heavy small ball on a hard-packed dirt surface. Students will need to transfer what they previously have learned about release/direction and creating force to trying to produce a roll that will land the rolled ball as close as possible to the very small target ball. They will need to transfer what they know about using/controlling body segments to create force on the ball. Distance to the target should be determined based on needs of the students.

Throughout the practice activities, the instructor should facilitate the transfer, reminding students about what they already know from past experiences with the underhand pattern. For transfer to occur from a fundamental movement pattern to a specific sport skill, instructors should

continued on next page

Question #16 (Strong Response) *continued*

provide cues that help students make the transition. The practice should be in an environment with similar equipment specific to when/how the skill is used and at the level of complexity that can be handled by the students.

Question #16 (Weak Response)

- Motor Learning Principle - practice
- To help students learn how to use the underhand roll used in bowling, they can practice the following. Line the students up in pairs and have them roll a playground ball back and forth to each other, practicing the underhand motion. They should try to roll directly to the person. Have them move farther apart every few minutes.
- They would be demonstrating proficiency because they are practicing the underhand motion.

The Science of Human Movement

Question #17 (Strong Response)

The main fitness goal of this exercise is to develop muscular strength and endurance, specifically in the upper arms and shoulders. The main muscles targeted are the biceps, brachialis, and triceps of the arm and the deltoids and trapezius muscles of the shoulder.

To perform this exercise efficiently lighter weights should be used. When picking up the weights, instead of locked knees and straight legs, knees should be flexed and the lower back held erect to protect the lumbar spine. There should be a controlled lift of the weights--not jerky or hurried. The weights, lifted at the same time, should be light enough for 12-15 repetitions without undue strain.

This exercise, if properly supervised, is appropriate to use in a middle school physical education class as part of a strength training program that can lead adolescents to increase power, endurance, and self-esteem.

Alternative exercises include (modified) push-ups, machine resistance exercises that target the triceps and deltoids, or clean-and-jerk lifts (with light weights) with a single bar that targets the trapezius. Seated biceps curls with 3- or 4-pound dumbbells can work the arm muscles with less strain on the back.

Scoring Information for CSET: Physical Education Subtest I

Responses to the multiple-choice questions are scored electronically. Scores are based on the number of questions answered correctly. There is no penalty for guessing.

There are two constructed-response questions in Subtest I of CSET: Physical Education. Each of these constructed-response questions is designed so that a response can be completed within a short amount of time—approximately 10–15 minutes. Responses to the constructed-response questions are scored by qualified California educators using focused holistic scoring. Scorers will judge the overall effectiveness of your responses while focusing on the performance characteristics that have been identified as important for this subtest (see below). Each response will be assigned a score based on an approved scoring scale (see page 17).

Your performance on the subtest will be evaluated against a standard determined by the California Commission on Teacher Credentialing based on professional judgments and recommendations of California educators.

Performance Characteristics for CSET: Physical Education Subtest I

The following performance characteristics will guide the scoring of responses to the constructed-response questions on CSET: Physical Education Subtest I.

PURPOSE	The extent to which the response addresses the constructed-response assignment's charge in relation to relevant CSET subject matter requirements.
SUBJECT MATTER KNOWLEDGE	The application of accurate subject matter knowledge as described in the relevant CSET subject matter requirements.
SUPPORT	The appropriateness and quality of the supporting evidence in relation to relevant CSET subject matter requirements.

Scoring Scale for CSET: Physical Education Subtest I

Scores will be assigned to each response to the constructed-response questions on CSET: Physical Education Subtest I according to the following scoring scale.

SCORE POINT	SCORE POINT DESCRIPTION
3	<p>The "3" response reflects a command of the relevant knowledge and skills as defined in the subject matter requirements for CSET: Physical Education.</p> <ul style="list-style-type: none"> • The purpose of the assignment is fully achieved. • There is an accurate application of relevant subject matter knowledge. • There is appropriate and specific relevant supporting evidence.
2	<p>The "2" response reflects a general command of the relevant knowledge and skills as defined in the subject matter requirements for CSET: Physical Education.</p> <ul style="list-style-type: none"> • The purpose of the assignment is largely achieved. • There is a largely accurate application of relevant subject matter knowledge. • There is acceptable relevant supporting evidence.
1	<p>The "1" response reflects a limited or no command of the relevant knowledge and skills as defined in the subject matter requirements for CSET: Physical Education.</p> <ul style="list-style-type: none"> • The purpose of the assignment is only partially or not achieved. • There is limited or no application of relevant subject matter knowledge. • There is little or no relevant supporting evidence.
U	<p>The "U" (Unscorable) is assigned to a response that is unrelated to the assignment, illegible, primarily in a language other than English, or does not contain a sufficient amount of original work to score.</p>
B	<p>The "B" (Blank) is assigned to a response that is blank.</p>