GRADE ELEVEN/TWELVE (ELECTIVE)

Elective physical education courses provide students with the opportunity to participate in physical activities for specific purposes. Students in elective physical education demonstrate the knowledge and understanding necessary to analyze movement performance in an activity of choice using scientific principles, and implement effective practice procedures for skillful performance in specialized movement forms. Students apply advanced movement-specific information so that they develop the ability to learn, self-assess, and improve movement skills independently. Options for offering specialized-movement courses can be configured by quarter, by semester, or on a full-year basis. Students should be offered the opportunity to self-select an activity throughout the course. Students will select areas of concentration to study.

Examples of activity choices:

- aerobics
- aquatics (swimming, kayaking, canoeing)
- cycling
- dance
- individual sports
- lifelong activities
- outdoor pursuits
- Pilates
- self-defense
- skating
- team sports
- weight management
- weight training/conditioning

Motor Skill Development

11/12.1 The student will study in-depth and demonstrate mastery of movement skills and patterns in at least one lifetime physical activity per nine-week period.

a) Demonstrate mastery in all basic skills and movement patterns required for the selected activity and the ability to use the skills with consistency in the appropriate setting.
b) Identify and apply appropriate skill practice and strategies of the selected activity at an advanced level.
c) Demonstrate advanced movement patterns in at least one self-selected movement or activity.
d) Demonstrate the ability to use combined movement skills and strategies in self-selected movement activities.
e) Analyze movement activities to identify component skills and movement patterns.
f) Conduct observations and skill analyses of others to improve skill performance.
g) Create practice and game plans for optimal performance of movement patterns in self-selected sport/activity from the perspective of a coach, personal trainer, athlete, or other sport-related role.
h) Select and apply appropriate practice procedures to learn skills and movement patterns in activities of personal interest.
i) Apply appropriate strategies during performance, including offensive and defensive strategies, game-specific situational strategies, and strategies for working more effectively with team members/partners.

Essential Understandings	**Essential Knowledge and Skills**
Skill mastery includes demonstration of all critical skill components and proficiency in the application of skills and strategies specific to selected activities. Lifetime activities depend upon activities offered to or selected by students. (11/12.1.a) Movement/motor learning progression includes analysis of current performance, development of a personalized practice plan for improvement that includes SMART goal setting, application of principles of movement and training, and planning for amount of time and activities needed for practice, correction,	In order to meet these standards, it is expected that students will • demonstrate mastery in all basic skills and movement patterns (11/12.1.a); • identify and apply appropriate skill practice and strategies (11/12.1.b); • demonstrate advanced movement patterns (11/12.1.c); • demonstrate the ability to use combined

Essential Understandings	Essential Knowledge and Skills

practicing at a higher level, and reassessment. (11/12.1.b)
 	
Advanced movement patterns include consistency of skill demonstration and the ability to adapt/react to changing/unpredictable game situations. (11/12.1.c)
 	
Combination movements can involve all three of the non-locomotor, locomotor, and object control movements together. Pairing combined movement skills with specific strategies creates a desired outcome in self-selected movement activities. (11/12.1.d)
 	
When analyzing movements, divide the movement performance into three phases:
• Preparatory: movements that prepare, such as a backswing in golf or tennis.
• Execution:
  ○ Force-producing movements, such as the forward motion of the tennis forehand shot.
  ○ Critical instant, the point of contact or release, such as the moment of contact in the tennis serve or the takeoff in the long jump.
• Follow-through: body movements after the execution where the movement slows down, such as the high leg lift after kicking a ball or the golf club after the ball is struck.
• Movement skill phases may not all fit neatly into three phases, and additional phases may be devised or added. (11/12.1.e, 11/12.1.f)
 	
Feedback is important to master advanced skills. Feedback is useful when it is
	movement skills and strategies (11/12.1.d);
	• analyze movement activities to identify component skills and movement patterns (11/12.1.e.);
	• conduct observations and skill analyses of others to improve skill performance (11/12.1.f);
	• create practice and game plans for optimal performance of movement patterns from the perspective of a coach, personal trainer, athlete, or other sport-related role (11/12.1.g);
	• select and apply appropriate practice procedures to learn skills and movement patterns (11/12.1.h);
	• apply appropriate strategies during performance (11/12.1.i).
	
	Additional resources:
	SHAPE America National Standards and Grade-Level Outcomes
	OpenPhysed
	Health Smart Virginia
	PE Central
	Dynamic PE ASAP

Essential Understandings	Essential Knowledge and Skills
focused on the goal of the skill and is specific, objective, and provided in terms understood by the recipient of the feedback. (11/12.1.f; also refer to 11/12.1.e) Practice and game planning can vary based on the perspectives of the person making the plans. (11/12.1.g) • Coach: impacts to planning may include preseason versus season, skills of all players and skills players need to develop, player injuries, conditions (facility and environmental/weather-related), individual and group/team skills and strategies, team building, teamwork and communication, and game-specific skills and strategies • Personal trainer: focused on the personal health, fitness goals, and safety of individuals or small groups • Athlete: focused on maintenance and improvement of personal skills; personal fitness goals. Learning skills and movement patterns begins with accessing resources for the proper ways to perform the skills, such as a coach, teacher, or other professional (in person or through media). Engage in deliberate practice that focuses on the specific skills and application of the skills. Use video or professionals to analyze ongoing skill development. (11/12.1.h; also refer to 11/12.1.b) Game/activity-specific strategies and communication are dependent upon the selected activity. (11/12.1.i)	

Anatomical Basis of Movement

11/12.2 The student will apply knowledge of body systems and movement principles, and concepts that aid in the improvement of movement skills and performance to specialized movement forms.

a) Explain and apply biomechanical and physiological principles that aid in the improvement of skills and performance in specialized movement forms, including laws of motion, leverage, balance, weight transfer, speed, timing, accuracy, force, cardiac output, maximal oxygen consumption (VO2 max), energy systems (aerobic and anaerobic), heart rate (resting, target, and recovery), caloric cost of activity, muscle contraction, static versus dynamic flexibility, and muscular strength versus muscular endurance.

b) Analyze performance to identify physiological and biomechanical deficiencies including self-evaluation, peer evaluation, and teacher evaluation.

c) Explain the rules, safety protocols, relevant markings/lines for the field of play, offensive and defensive tactics, and common penalties and violations for selected activities.

d) Design, justify, and evaluate warm-up and cool-down sequences for selected activities.

e) Apply the FITT (frequency, intensity, time, and type of exercise) principle to improve skill performance.

f) Apply the specificity, overload, and progression (SOP) principle to the design and performance of a physical activity program to achieve physical benefits.

g) Analyze feedback about personal performance to improve skills including self-evaluation, peer evaluation, and teacher evaluation.

Essential Understandings	**Essential Knowledge and Skills**

Biomechanical and physiological principles that aid in the improvement of skills and performance include: (11/12.2.a)
• Newton's laws of motion
  ○ Inertia: An object at rest or in motion will stay in that state until acted upon by a force strong enough to change its state of motion.
  ○ Acceleration/momentum: Acceleration of an object is directly
	In order to meet these standards, it is expected that students will
	• explain and apply biomechanical and physiological principles that aid in the improvement of skills and performance in specialized movement forms, including the

Essential Understandings	Essential Knowledge and Skills
proportionate to the amount of force applied and moves in the direction in which the force is applied. o Action and reaction: For every action there is an equal and opposite reaction. • Leverage: The bones of the body are levers as well as a stiff, straight object that can be used to lift weight, increase force, or create speed. • Balance: even distribution of weight that enables someone or something to remain upright while remaining stable and achieving equilibrium. The ability to maintain the body's center of gravity within the limits of stability as determined by the base of support. o Center of gravity is the point at which all of the body's mass and weight are equally balanced or equally distributed in all directions (in the body it is slightly higher than the waist). o An individual's limits of stability are the points outside the base of support that they can go without losing control of the center of gravity. o Base of support: the surface supporting the body and points of contact with that surface (when standing, the position of the feet on the ground). o The lower the center of gravity to the base of support, the greater the stability. o The nearer the center of gravity to the center of the base of support, the more stable the body. o Stability is increased with the number of points of contact (two feet versus one foot). o Dynamic activities can also be described as those that cause the center	laws of motion, leverage, balance, weight transfer, speed, timing, accuracy, force, cardiac output, maximal oxygen consumption (VO2 max), energy systems (aerobic and anaerobic), heart rate (resting, target, and recovery), caloric cost of activity, muscle contraction, static versus dynamic flexibility, and muscular strength versus muscular endurance (11/12.2.a); • analyze performance to identify physiological and biomechanical deficiencies, including self-evaluation, peer evaluation, and teacher evaluation (11/12.2.b); • explain the rules, safety protocols, relevant markings/lines for the field of play, offensive and defensive tactics, and common penalties and violations for selected activities (11/12.2.c); • design, justify, and evaluate warm-up and cool-down sequences for selected activities (11/12.2.d); • apply the FITT (frequency, intensity, time, and type of exercise) principle to improve skill performance (11/12.2.e); • apply the specificity, overload, and

Essential Understandings	Essential Knowledge and Skills
of gravity to move in response to muscular activity. • Weight transfer: weight is moved from one supporting foot or other body part partially or fully to another foot or other body part, such as from the rear leg/foot in a golf backswing to the front left/foot in the downswing/follow through. • Speed: rate of motion; the ability to move swiftly. • Timing: the ability to coincide movements in relation to external factors; a combination of decision-making, coordination, and reaction time which gets the player in the right place at the right time (TopEnd Sports and Science). • Accuracy: requires precision of movement with the critical elements of skills, such as follow-through and aim in the desired direction when throwing to a target; affected by the ability to use force as needed for an intended target or outcome. • Force: strength or energy exerted; force causes movement. • Cardiac output: the amount of blood the heart pumps in one minute; dependent upon heart rate, contractility, preload, and afterload ("Understanding Cardiac Output"; doi: 10.1186/cc6975). • Maximal oxygen consumption/uptake (VO2 max): measurement of the maximum amount of oxygen a person can use during exercise; used to establish aerobic endurance/cardiovascular fitness; the greater the VO2 max, the more oxygen a person's body can consume and the more effectively the body can use that oxygen to generate the maximum amount of ATP energy (https://www.healthline.com/health/vo2-max#about-vo%E2%82%82-max). • Two respiration systems are used by the body for energy, and the systems	progression (SOP) principle to the design and performance of a physical activity program to achieve physical benefits (11/12.2.f); • analyze feedback about personal performance to improve skills, including self-evaluation, peer evaluation, and teacher evaluation. (11/12.2.g) Additional resources: SHAPE America National Standards and Grade-Level Outcomes OPEN Online Physical Education Network Health Smart Virginia PE Central Dynamic PE ASAP KidsHealth.org

Essential Understandings	Essential Knowledge and Skills
are dependent upon the duration of the activity. ○ Anaerobic respiration system (ATP-PC and lactic acid system; works without oxygen; adenosine triphosphate [ATP – energy carrying molecule] and phosphocreatine [PC]) ▪ To immediately meet the sudden higher energy demand, stored ATP is the first energy source. This lasts for approximately two seconds. ▪ The ATP-PC system can only last eight to 10 seconds before PC stores are depleted. ▪ The lactic acid system (anaerobic glycolysis) must then take over as the predominant source of energy production; high-intensity (but sub-maximal) exercise can last for between three and five minutes using this system. ▪ If the exercise continues at a high intensity, oxygen is not available at a fast enough rate to allow aerobic metabolism to take over. The production of lactic acid will reach the point where it interferes with muscular function; this is called the lactate threshold. ▪ Muscles begin to fatigue when ATP resynthesis can no longer match demand. ○ Aerobic respiration system, aka aerobic glycolysis: breakdown of carbohydrates to produce ATP; slow, uses carbohydrates or fat (carbohydrates and fats are only burned in presence of oxygen); needs oxygen to produce ATP; sustained energy; longer-duration, lower-intensity after anaerobic systems have fatigued; long-term steady paced exercise and day-to-day activities; produces large amounts of	

Essential Understandings	Essential Knowledge and Skills
energy at the lowest intensity • Heart rate (resting, target, and recovery) ○ Resting heart rate: In general, resting heart rate is an indication of efficient heart function and better cardiovascular fitness. A trained athlete may have a resting heart rate closer to 40. It is best taken after 10 minutes of rest. ○ Target heart rates: Active heart rate can be taken at multiple points during an activity and include being taken immediately after stopping the activity. It helps to determine appropriate intensity levels for exercise. By keeping the target heart rate in check, a person can avoid under- or over-training and is able to avoid overexertion. Exercise programs may be characterized by the level of intensity or percentage of maximal heart rate range (maximum heart rate is 220 minus a person's age). (Target Heart Rate Zone information [https://www.heart.org/en/healthy-living/fitness/fitness-basics/target-heart-rates]) Some drugs and medications or medical conditions may affect heart rate, resulting in having a lower maximum heart rate and target zone. A healthcare provider should be consulted. ○ Recovery heart rate: the decrease in heart rate that occurs one minute after maximal exercise. Faster decreases in heart rate are associated with individuals with higher levels of fitness. • Caloric cost of activity: net energy consumed by an activity (various charts available online, such as Harvard Health chart, for calories burned in 30 minutes of different activities for three different body weights). • Types of muscle contractions ○ Isometric: the length of the muscle does not change.	

Essential Understandings	Essential Knowledge and Skills
○ Isotonic: the length of the muscle does change. ○ Eccentric: an isotonic contraction where the muscle lengthens. ○ Concentric: an isotonic contraction where the muscle shortens. • Muscular stretching: Be sure to raise the body's internal temperature through light physical activity before engaging in stretching activities. ○ Static: slow and constant with end position held; caution is exercised with proper technique. ○ Dynamic: flexibility during sport-specific movements, such as a track sprinter performing long walking strides for a warmup; focus on hip extension. • Muscular strength: maximum force that muscles can exert in a single effort, including getting up out of a chair and lifting /moving heavy objects. • Muscular endurance: the ability to sustain or repeat muscular activity over time, including running, biking, and walking. Analyzing performance of self and others can indicate physiological and biomechanical deficiencies. Applying movement principles can aid in the improvement and performance of the chosen activity. (11/12.2.b; refer to 11/12.1.e-f and 11/12.2.a-b) Rules, safety protocols, relevant markings/lines for the field of play, offensive and defensive tactics, and common penalties and violations are dependent upon the selected activities. (11/12.2.c) Proper and comprehensive warm-up and cool-down protocols are essential to short-term exercise performance, as well as long-term injury prevention and	

Essential Understandings	Essential Knowledge and Skills
general physical health. Warm-ups and cool-downs should include components that are aligned with the physical demands of the selected activity. (11/12.2.d) • Warm-up: pumps nutrient-rich, oxygenated blood to muscles as heart rate, breathing, and body temperature increases, preparing the body for activity. • Cool-down: gradually slows breathing and heart rate; gradual recovery of pre-exercise heart rate and blood pressure. FITT principle—frequency, intensity, time, and type of exercise—is a "formula" for planning physical activity/activities (i.e., how often to do the activities, how hard, and for how long to meet goals). (11/12.2.e) The principles of specificity, overload, and progression (SOP) are highly interconnected and are reciprocally dependent on each other. (11/12.2.f) • Specificity: desired adaption occurs in response to specific stress placed upon the body; exercise/activity needs to match desired outcome. • Overload: stress must be applied beyond that which the body is accustomed to; increase workload (added weight, time, intensity, and/or repetitions). • Progression: once the body has adapted to a level of stress, additional stress is needed; progressively or gradually increase workload. To improve skills, feedback about personal performance is an essential factor affecting motor skill development. Feedback has been defined as an action taken by an agent (e.g., teacher and student) to deliver information about one or more aspects of student performance ("The effects of feedback interventions on	

Essential Understandings	Essential Knowledge and Skills
performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory," doi: 10.1037/0033-2909.119.2.254; "The power of feedback," doi: 10.3102/003465430298487). Use this feedback to guide and improve future performance by looking at the components of that performance and adjusting/modifying as needed. (11/12.2.g)	

Fitness Planning

11/12.3 The student will design, implement, and evaluate a personal fitness program for self, a college student, or an employee in a selected field of work.

a) Assess individual level of health-related fitness using a variety of appropriate measures (e.g., criterion-referenced wellness tests, FitnessGram) and technology (heart-rate monitors, pedometers, accelerometers, and bioelectrical impedance).
b) Evaluate and adjust activity levels to meet the Centers for Disease Control and Prevention's Physical Activity Guidelines for Americans.
c) Design and critique a personal fitness program, using available technology (e.g., electronic portfolios, tracking applications) and resources, to improve or maintain personal fitness levels in relation to the five components of fitness.
d) Explain the physical and mental (emotional, social) benefits of physical fitness for lifelong health and wellness.
e) Create personal fitness plans for a variety of situations (e.g., injury, aging) based on goals.
f) Identify and evaluate community resources for selected physical and/or lifetime activities, including recreation centers, local fitness centers, adult leagues, and other fitness clubs/groups.
g) Identify barriers to physical activity, including those related to time, motivation, or energy, skill confidence, fear of injury, resources, and social influences/peer pressure, and identify strategies to overcome these barriers.
h) Evaluate and apply scientific evidence to make critical decisions when purchasing fitness products and/or services.

Essential Understandings	Essential Knowledge and Skills

Essential Understandings	Essential Knowledge and Skills
Criterion-referenced wellness tests emphasize a health criterion—health outcomes or health risks; scores/standards set by determining the point or level on which a fitness parameter is associated with an increased risk of a disease outcome or risk factors of disease. (Norm-referenced tests compare students' performance to peers and emphasize peak performance; dependent on population; https://www.cooperinstitute.org/vault/2440/web/files/785.pdf) (11/12.3.a) Health-related fitness measures using technology may include • Heart rate monitors: Two types: wireless chest/arm straps that use an electrical pulse to read heart rate (tend to be more accurate) and wrist-based/headphones trackers that use optical technology (light). Both can send continuous data to a monitor (watch/phone). Other heart rate monitors and technology may be available. • Pedometers: track steps taken by indicating each time the wearer's hips move. Some models can track foot movement via a GPS tracker or built-in sensors on a phone. • Accelerometers: measure acceleration; able to capture intensity of physical activity; able to distinguish between walking and running; can separate human movement from mechanical vibration, such as riding in a car. • Bioelectrical impedance analysis: A person places their hands on the electrodes of a device for about 20 seconds. It runs an imperceptible level of electrical current through the body. The flow of the current is affected by the amount of water in the body. The device measures how this signal is impeded through different types of tissue. Tissues that contain large amounts of fluid and electrolytes, such as blood, have high conductivity,	In order to meet these standards, it is expected that students will • use criterion-referenced wellness tests and technology to assess their individual level of health-related fitness (11/12.3.a); • evaluate and adjust activity levels (11/12.3.b); • use assessment results to design and critique a personal fitness program (11/12.3.c); • explain the physical and mental (emotional, social) benefits of physical fitness (11/12.3.d); • create fitness plans for a variety of individuals or situations (11/12.3.e); • identify and evaluate community resources for physical activities (11/12.3.f); • identify barriers and strategies to overcome barriers to physical activity (11/12.3.g); • evaluate and apply scientific evidence to make critical decisions when purchasing fitness products and/or services. (11/12.3.h) Additional resources: SHAPE America National Standards and Grade-Level Outcomes KidsHealth.gov

Essential Understandings	Essential Knowledge and Skills
but fat and bone slow the signal down. Because BIA determines the resistance to flow of the current as it passes through the body, it provides estimates of body water from which body fat is calculated using selected equations. Physical activity guidelines – 60 minutes per day; weekly: 150 minutes of moderate-intensity aerobic activity, 75 minutes of vigorous-intensity aerobic activity, or an equivalent mix of the two each week. (CDC) (11/12.3.b) Health-related fitness components provide information about a person's overall physical health. (11/12.3.c) • Health-related fitness components include cardiorespiratory endurance, flexibility, muscular strength and endurance, and body composition. • Personal fitness planning includes o assessing and analyzing personal fitness levels o setting SMART goals for improvement and/or maintenance o creating strategies to achieve goals and monitor progress ▪ applying FITT and SOP principles o making timelines to achieve goals o plan for reassessing, evaluating, and reflecting on progress of goals o revising plan strategies as needed. Regular exercise helps control blood pressure, body weight, and cholesterol levels; decreases the risk for hardening of the arteries, heart attack, stroke, arthritis, and diabetes; improves digestion, helps to manage stress, aids in better sleep and is good for managing low-back pain. Anyone can be at risk for chronic	Health Smart Virginia MyPlate.gov OpenPhysed Physical Activity Guidelines for Americans, 2nd ed. Healthy Children.org

Essential Understandings	Essential Knowledge and Skills
disease; however, some people are more at risk due to heredity (received from a parent or ancestor by genetic transmission) or because a condition is familial (tending to occur in more members of a family than expected by chance alone). (11/12.3.d) Social and emotional benefits/supports of participation in physical activities may include: (11/12.3.d) • Improved mental health and mood. • Reduced risk of depression and anxiety. • Development of higher self-esteem and body image. • Development of basic motor skills needed for day-to-day life. • Effective promotion of mutual understanding and empathy. • Development of character; social skills like teamwork, cooperation, and leadership. • An ability to win and lose while being a good sport. • Development of resiliency. Fitness plans should be based on individual goals and desired outcomes with planning for appropriate activities and strategies to address potential barriers to success. Plans should include pre- and post-assessment opportunities. (11/12.3.e) Community resources for physical activities may include recreation centers, park and recreation agencies, fitness centers, adult leagues, online communities, and other fitness clubs/groups. These resources can be evaluated on the quantity and quality of services provided as well as equitable access and mechanisms to ensure safety for community members. (11/12.3.f)	

Essential Understandings	Essential Knowledge and Skills
Successful planning for lifelong physical activity includes identifying barriers and developing strategies to overcome barriers, such as time (using time management skills, sticking to a routine), motivation (having goals, having an exercise partner), energy (making appropriate nutrition choices), skill confidence (time for practice, access to a trainer/coach), fear of injury (using appropriate equipment, addressing safety, staying fit), resources (planning in advance, being innovative), and social influences/peer pressure (being goal oriented, perseverance, planning time). (11/12.3.g) Becoming an informed consumer of fitness products and services is essential for health and safety in a market where there are many fitness claims available to consumers. Fitness products can include equipment, technology, performance clothing, consumables, supplements, or creams. Fitness services can include personal trainers, diet plans, classes, gym memberships etc. Informed fitness consumers should consider the following: • Personal goals: level of commitment • Lifestyle habits: time and space • Advertising claims and discrepancies • Alignment between fitness product and personal goals • Financial costs and effects	

Social and Emotional Development

11/12.4 The student will evaluate and implement a safe environment for skill practice and play and demonstrate social competency skills for lifetime activity participation.

a) Evaluate, create, and implement a growth mindset plan for increasing self-efficacy.
b) Demonstrate appropriate etiquette as a participant and spectator in physical activity/sport.
c) Demonstrate proper care of athletic/activity equipment.
d) Demonstrate safe behavior when participating in or watching physical activity/sport.
e) Explain and demonstrate leadership skills of critical thinking, creative thinking, communication, collaboration, and citizenship skills.
f) Demonstrate the ability to work cooperatively to accomplish a group goal.
g) Advocate for a rule change or modification in a sport or activity to facilitate safety or the inclusion of individuals from the point of view of an athlete, coach, parent, or referee.
h) Demonstrate respect for differences among people in physical activity settings.
i) Develop and demonstrate strategies for inclusion of persons of diverse backgrounds and identify personal, cultural, and linguistic assets in setting collective goals.
j) Identify ways that physical activities can provide positive social interaction, such as the benefits of team involvement and an individual's role as a positive member of a group.
k) Create and implement a strategy to promote peer involvement in physical activity, such as a social-networking campaign or a video.
l) Describe and demonstrate behaviors that support an inclusive environment, where a sense of belonging, acceptance, and value is available to all students.

Essential Understandings	**Essential Knowledge and Skills**
Growth mindset is the underlying belief you have about learning and intelligence. If you believe you can get smarter, more effort is put into achievement. To improve, use prompts such as, "I can learn to do anything I	In order to meet these standards, it is expected that students will • evaluate, create, and implement a growth

Essential Understandings	Essential Knowledge and Skills
want…," "Challenges help me to grow," and "My effort and my attitude determine my abilities." (11/12.4.a) Etiquette refers to unwritten rules or customs and requires key virtues such as respect, responsibility, integrity, and fairness (e.g., shaking hands/giving high fives/congratulating the other team at the end of a game, speaking respectfully as a spectator). (11/12.4.b) Proper care of athletic/activity equipment should include appropriate use and cleaning per manufacturers' instructions. (11/12.4.c) Safe behavior when participating in or watching physical activity/sport helps to ensure the safety of everyone. (11/12.4.d) Leadership skills include: • Problem-solving skills o Identify the problem. o Analyze the problem. o Generate potential solutions. o Select and plan the solution. o Implement the solution. • Communication skills/strategies o Verbal: sharing of information/relaying a message between two or more people that uses sounds, signs and/or language; oral or written; spoken word; face-to-face or electronically. o Nonverbal: sending and receiving wordless messages; body	mindset plan for increasing self-efficacy (11/12.4.a); • demonstrate appropriate etiquette (11/12.4.b); • demonstrate proper care of athletic/activity equipment (11/12.4.c); • demonstrate safe behavior when participating in or watching physical activity/sport (11/12.4.d); • explain and demonstrate leadership skills (11/12.4.e); • demonstrate the ability to work cooperatively to accomplish a group goal (11/12.4.f); • advocate for a rule change or modification in a sport or activity (11/12.4.g); • demonstrate respect for differences among people (11/12.4.h); • develop and demonstrate strategies for inclusion of persons of diverse backgrounds and abilities and identify individual assets in setting collective goals (11/12.4.i); • identify ways that physical activities can provide positive social interaction (11/12.4.j);

Essential Understandings	Essential Knowledge and Skills
movements/body language, such as facial expressions, body posture, gestures, eye contact, way, tone of voice, and touch. o Visual: visual aids, such as signs, graphics, drawings, design, color, graphs, and charts. o Active listening– pay attention to the speaker, avoid being distracted; show you are listening, smile, nod; provide feedback – restate what you heard, ask questions; defer judgment – don't interrupt; respond with respect. • Conflict resolution skills o Discuss problem without blame. o Active listening. o Identify and clarify issues and needs. o Brainstorm solutions. o Choose and apply a solution. o Evaluate the solution. • Cooperation skills o Following rules o Encouraging others o Complimenting others o Controlling temper o Wanting everyone to play well and succeed o Working together toward a common goal o Helping classmates/teammates o Playing under control o Sharing o Showing concern for teammates/classmates' feelings (11/12.4.f)	• create and implement a strategy to promote peer involvement in physical activity (11/12.4.k); • describe and demonstrate behaviors that support an inclusive environment. (11/12.4.l) Additional resources: OPEN Online Physical Education Network Health Smart Virginia PE Central EverFi KidsHealth.org

Essential Understandings	Essential Knowledge and Skills
Inclusion: the action or state of including or of being included within a group or structure. Advocating for modifications or rule adjustments can be incorporated into physical activity opportunities. (11/12.4.g) Ways to respect people who are different from us: • Try to learn something from the other person. • Show interest and appreciation for other people's cultures and backgrounds. • Don't insult people, tease them, or make fun of them. • Listen to others when they speak. • Be considerate of people's likes and dislikes. • Don't talk about people behind their backs. • Be sensitive to other people's feelings. (Adapted from Elkind+Sweet Communications/Live Wire Media) (11/12.4.h) Creating an inclusive culture for physical education and physical activity helps every student learn to lead a healthy and active lifestyle (CDC). Strategies for inclusion may include modifying/adapting the equipment, rules, environment, or activity; creating a welcoming/inclusive environment, one that supports and uplifts everyone; and providing meaningful learning and participatory experiences. (11/12.4.i) Physical activities can provide positive social interaction by meeting new people, engaging in similar interests with others, and experiencing teamwork and	

Essential Understandings	Essential Knowledge and Skills
cooperation. Team involvement helps to develop self-esteem, self-confidence, competence, caring, character, connections, and skills including communication and relationship building. (11/12.4.j) Strategies to promote peer involvement in physical activity may include low-/no-cost activities, where to access activities, providing competitive and non-competitive activities, and differentiating activities for a variety of abilities. (11/12.4.k) A supportive, inclusive environment includes access to learning and the curriculum with the best approach to ensure learning physically, socially, and emotionally. This could include speed of play, differentiated instruction, autonomy-supported instruction, demonstrations, use of tools/modified equipment, peer-partner opportunities, etc. (11/12.4.l)	

Energy Balance

11/12.5 The student will explain the importance of energy balance and demonstrate understanding of the nutritional needs of the body to maintain optimal health and prevent chronic disease for a lifetime.

a) Analyze the relationships among physical activity, nutrition, body composition, and sleep that are optimal for personal health and/or for participation in a self-selected physical activity.
b) Analyze current and future nutritional and physical activity needs in relation to changes in growth/aging.
c) Explain the benefits of nutrient-dense, low-sodium foods versus high-calorie, empty calorie, and high-sodium foods.
d) Analyze current and future sleep needs for positively influencing academic, career success, and mental health.
e) Apply rate of perceived exertion and pacing to a conditioning plan that meets the needs of a self-selected physical activity.
f) Explain energy balance in terms of caloric intake and expenditure in relation to changing lifestyle needs from adolescence to adulthood.
g) Compare caloric expenditure while sitting and standing.

Essential Understandings	**Essential Knowledge and Skills**
Each person may have different needs for calories and exercise. A healthy lifestyle requires balancing the foods you eat, beverages you drink, adequate sleep, stress management, and the amount of activity in your daily routine. (CDC) (11/12.5.a) • Regular exercise helps control blood pressure, body weight, and cholesterol levels; decreases the risk for hardening of the arteries, heart attack, stroke, arthritis, and diabetes; improves digestion, helps to manage stress, aids in better sleep, and is good for managing low-back pain. • A healthy eating plan emphasizes fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products; includes lean meats, poultry, fish, beans, eggs, and nuts; is low in saturated fats, trans fats, cholesterol, salt (sodium), and added sugars; and stays within daily calorie needs.	In order to meet these standards, it is expected that students will • analyze the relationships among physical activity, nutrition, body composition, and sleep (11/12.5.a); • analyze current and future nutritional and physical activity needs in relation to changes in growth/aging (11/12.5.b); • explain the benefits of nutrient-dense, low-sodium foods versus high-calorie, empty calorie, and high-sodium foods (11/12.5.c); • analyze current and future sleep needs

Essential Understandings	Essential Knowledge and Skills
• Body composition: A high amount of body fat can lead to weight-related diseases and other health issues. Being underweight is also a health risk. • Sleep is a powerful regulator of appetite, energy use, and weight control. Sleep deprivation can inhibit one's ability to lose weight even while exercising and eating well. Physical activity guidelines (https://health.gov/our-work/physical-activity/current-guidelines) (11/12.5.b) • Ages 6-17: moderate- and vigorous-intensity physical activity for periods of time that add up to 60 minutes (one hour) or more each day. This activity should include aerobic activity as well as age-appropriate muscle- and bone-strengthening activities. • Adults: 150-300 minutes of moderate-intensity aerobic physical activity each week; muscle-strengthening activities also provide health benefits and are an important part of an adult's overall physical activity plan. Expenditure and intake needs vary with age and physical activity levels. Refer to Dietary Guidelines for Americans (https://www.dietaryguidelines.gov/) for adolescent and adult guidelines for caloric expenditure and intake. Also see the DRI Calculator for Healthcare Professionals tool that calculates daily nutrient recommendations based on the Dietary Reference Intakes (DRIs) established by the Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine. The data represents the most current scientific knowledge on nutrient needs; however, individual requirements may be higher or lower than DRI recommendations (https://www.nal.usda.gov/fnic/dri-calculator/index.php). (11/12.5.b)	(11/12.5.d); • apply rate of perceived exertion and pacing to a conditioning plan (11/12.5.e); • explain energy balance in relation to changing lifestyle needs from adolescence to adulthood (11/12.5.f); • compare caloric expenditure while sitting and standing. (11/12.5.g) Additional resources: OpenPhysed Health Smart Virginia PE Central KidsHealth.gov MyPlate.gov Physical Activity Guidelines for Americans, 2nd ed. American Heart Association

Essential Understandings	Essential Knowledge and Skills
Nutrient-dense foods are high in nutrients but relatively low in calories. (11/12.5.c) • Nutrient-dense foods contain vitamins, minerals, complex carbohydrates, lean protein, and healthy fats. • Examples of nutrient-dense foods include fruits and vegetables, whole grains, low-fat or fat-free milk products, seafood, lean meats, eggs, peas, beans, and nuts. • Vegetables, fruits, and grains offer important vitamins and minerals to keep the body healthy. Most of these foods have little fat. They also have no cholesterol. • Fruits, vegetables, and grains are also a source of fiber, and eating more fiber may lower cholesterol and blood sugar. Guidelines for sleep: Teens 13-18 should get eight to 10 hours per 24 hours of sleep; adults 18-60 should get seven or more hours per night. (CDC) (11/12.5.d) • Stimulants like coffee and energy drinks, alarm clocks, and external lights (including those from electronic devices) interfere with our "circadian rhythm," or natural sleep/wake cycle. • A good night's sleep improves learning. Sleep is involved in healing and repair of heart and blood vessels. Adequate sleep reduces heart rate and blood pressure and helps a person function productively/safely throughout the day. People who are sleep deficient are less productive at work/school. They take longer to finish tasks, have a slower reaction time and make more mistakes. Consult a primary care physician or a sleep professional to determine the underlying cause if experiencing symptoms such as	

Essential Understandings	Essential Knowledge and Skills
sleepiness during the day or when you expect to be awake and alert, snoring, leg cramps or tingling, gasping or difficulty breathing during sleep, prolonged insomnia, or another symptom that is preventing you from sleeping well. Pacing is needed to avoid fatigue before the end of an activity (e.g., jogging three miles); strategy by which effort is managed during exercise based on a goal and demands of the task; time per distance. Pacing strategies may include time, heart rate, and level of intensity/using a RPE scale. (11/12.5.e) • Perceived exertion is how hard a person feels like their body is working. Rate of perceived exertion (RPE) is a way of measuring physical activity intensity level. Scales may range from five to 20 levels. Example (variation of Borg scale): o Level 1 – Very light activity (seated) o Level 2 – Light activity (can maintain for hours, easy to breathe, walking) o Level 3 – Moderate activity (breathing heavily, somewhat comfortable; skipping, galloping) o Level 4 – Vigorous activity (borderline uncomfortable, short of breath; jogging/running) o Level 5 – Very hard activity (difficult to maintain exercise intensity, barely breathe, running/sprinting) o Level 6 – Max effort activity (almost impossible to keep going, out of breath, sprinting) Energy expenditure is the sum of the basal metabolic rate (BMR, the amount of energy expended while at complete rest), the thermic effect of food (TEF, the	

Essential Understandings	Essential Knowledge and Skills

energy required to digest and absorb food), and the energy expended in physical activity. (11/12.5.f-g)
• Energy is needed to keep the heart beating and organs functioning, maintenance of body temperature, muscle contraction, and growth.
• An average adult will use around 1.1 calories (kcal) each minute just maintaining these functions.
• BMR differs from one person to the next, both within a population and between population groups.
  o Infants and young children tend to have a proportionately high BMR for their size due to their rapid growth and development.
  o Men usually have a higher BMR than women because they tend to have more muscle.
  o Older adults usually have a lower BMR than younger people because their muscle mass tends to decrease with age.
• The BMR accounts on average for about three-quarters of an individual's energy needs. See 11/12.5.c.
 	
While staying active is the best way to burn calories, you may be able to improve your health by simply spending more time standing than sitting each day. (11/12.5.g)
• Standing burns more calories than sitting ("What to Know About Standing to Burn Calories."
• Standing has less possible health risks compared to sitting all day each day.
• While this may not help you lose a significant amount of weight, it can certainly help you maintain your current weight and reduce certain health	

Essential Understandings	Essential Knowledge and Skills
risks.	