

**VA SOL Standard:** 9.1 The student will perform all basic movement skills and demonstrate movement and biomechanical principles in a variety of activities that may include outdoor pursuits, fitness activities, dance and rhythmic activities, aquatics, individual performance activities and games and sports (net/wall, striking/fielding and goal/target(s)).

**ESSENTIAL UNDERSTANDINGS**

- Achieving physical literacy includes movement experiences that build competent and confident movers through acquisition, performance and refinement of movement skills in a variety of activities.
- Movement competence is defined as the development of sufficient skill and ability to ensure successful performance in a variety of physical activities.

Note: Society for Health and Physical Educators (SHAPE America) National Physical Education Standards Document 2014 recommends exclusion of invasion and fielding/striking games for high school outcomes because these activities require team participation and are less suited for lifelong participation.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.1 a)</b> Demonstrate proficiency and refinement in locomotor, non-locomotor and manipulative skills through appropriate activities (e.g., outdoor pursuits, fitness activities, dance and rhythmic activities, aquatics, individual performance activities, games and sports [net/wall, striking/fielding and goal/target]).</p> <p><b>Suggested Learning Targets:</b></p> <p>I can recognize the advanced skills for (selected activity) and demonstrate them using a checklist.</p> <p>I can create a dance/rhythmic sequence that includes various tempos including changes in speed, direction and flow and demonstrate this through a (self/group) presentation.</p> <p>I can perform with proficiency the skills needed for (selected activity) and demonstrate it through a peer assessment.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Written: Pre-test cognitive knowledge for skills needed to be successful in activity(s) selected.</li> <li>• Performance: Pre-test skill performance of mature movement forms and skill combinations.</li> <li>• Self/Peer assessments: Assessing skill levels in the combination of specialized movement forms for selected activities (e.g., negotiating obstacles when cycling, combining movements in dance for fitness activities).</li> <li>• Teachers Observation with feedback of skills while participating in modified activities.</li> <li>• Skill Checklist: for advanced skills.</li> <li>• Skill Rubric: for activity application.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p>	<ul style="list-style-type: none"> <li>• Activity-specific vocabulary</li> <li>• Self/Peer Feedback:             <ul style="list-style-type: none"> <li>○ Improves motor skills by providing error detection and motivation.</li> <li>○ Is based on the critical elements for each skill.</li> <li>○ Two corrections at the most should be identified for feedback</li> <li>○ Should be specific and meaningful.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Outdoor pursuits such as hiking, backpacking, kayaking, fishing orienteering, geocaching, traversing or climbing, mountain biking, adventure activities or ropes courses. Example: Disc Golf <a href="http://www.sparkpe.org/wp-content/uploads/clap-catch_hs.pdf">http://www.sparkpe.org/wp-content/uploads/clap-catch_hs.pdf</a>  <a href="http://www.sparkpe.org/wp-content/uploads/c-catch_hs.pdf">http://www.sparkpe.org/wp-content/uploads/c-catch_hs.pdf</a>  <a href="http://www.sparkpe.org/wp-content/uploads/forehand-throw-card_hs.pdf">http://www.sparkpe.org/wp-content/uploads/forehand-throw-card_hs.pdf</a>  <a href="http://www.sparkpe.org/wp-content/uploads/backhand-throw-card_hs.pdf">http://www.sparkpe.org/wp-content/uploads/backhand-throw-card_hs.pdf</a></li> <li>• Fitness activities such as yoga, Pilates, resistance training, spinning, running, fitness walking, fitness swimming, kickboxing, cardio-kick, Zumba or exergaming.</li> <li>• Dance and rhythmic activities such as creative movement, ballet, modern,</li> </ul>

	<ul style="list-style-type: none"> <li>• Written: Post cognitive tests for comprehension of skills needed to be successful in activity(s) selected.</li> <li>• Performance: Skill rubric</li> </ul> <p style="text-align: center;">Sample Performance Rubric</p> <p>4 (<i>Beyond what was taught</i>) Displays consistent and correct performance of all elements during unpredictable situations; includes smooth transitions between skills/movements; includes advanced strategies as appropriate.</p> <p>3 (<i>What was explicitly taught</i>) Performs all critical elements (mature movement skills and patterns) appropriately and consistently during unpredictable situations and adapts movements to changing situations.</p> <p>2 (<i>Identify basic elements</i>) Performs critical elements (mature movements skills and patterns) in isolation.</p> <p>1 (<i>With help/prompts/cues</i>) With teacher cues, student can demonstrate some/most of the critical elements in isolation.</p>		<p>ethnic or folk, hip hop, Latin, line, ballroom, social or square.</p> <ul style="list-style-type: none"> <li>• Aquatics such as swimming, diving and water polo.</li> <li>• Individual-performance activities such as figure skating, track and field, multisport events, in-line skating, self-defense and cycling.</li> <li>• Net/wall and goal/target activities such as tennis, badminton, pickle ball, racquet ball, archery and golf.</li> <li>• Manipulation of activity skills/components, such as rules, activity space and movement within the activity space to create practice scenarios that develop understanding and the application of movement skills for intelligent play.</li> <li>• Opportunities to develop movement competencies necessary to successfully apply the movement solutions for the selected activities.</li> <li>• Self/Peer assessing opportunities for the purpose of: <ul style="list-style-type: none"> <li>○ Increasing the quantity of feedback.</li> <li>○ Promoting learning motivation.</li> <li>○ Supporting the development of self-regulated learning, critical thinking and reciprocal learning.</li> </ul> </li> </ul>
<p><b>Resources:</b> SHAPE America National Standards and Grade-Level Outcomes; <a href="http://www.pecentral.org/lessonideas/searchresults.asp?category=53">http://www.pecentral.org/lessonideas/searchresults.asp?category=53</a>; <a href="http://www.ndya.org/uploads/Coaches_Manual_2009_Revised_Ch_6.docx">www.ndya.org/uploads/Coaches Manual 2009 Revised Ch 6.docx</a>; <a href="http://www.sparkpe.org/wp-content/uploads/yoga-basic-training.pdf">http://www.sparkpe.org/wp-content/uploads/yoga-basic-training.pdf</a>; <a href="http://www.sparkpe.org/wp-content/uploads/yoga-content-card_hs.pdf">http://www.sparkpe.org/wp-content/uploads/yoga-content-card_hs.pdf</a>; <a href="http://kidshealth.org/en/teens/tai-Chi.html?WT.ac=ctg#catdieting">http://kidshealth.org/en/teens/tai-Chi.html?WT.ac=ctg#catdieting</a>; <a href="http://kidshealth.org/en/teens/yoga-home.html?WT.ac=ctg#catdieting">http://kidshealth.org/en/teens/yoga-home.html?WT.ac=ctg#catdieting</a></p>			

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**ESSENTIAL UNDERSTANDING**

- Achieving physical literacy includes movement experiences that build competent and confident movers through acquisition, performance and refinement of movement skills in a variety of activities.

<p><b>VDOE Standard(s)</b>  <b>Student Friendly Language</b>                      What will the student know and be able to do?</p>	<p><b>SUGGESTED / SAMPLE ASSESSMENTS</b></p>	<p><b>Terms (Vocabulary) and Content Information</b></p>	<p><b>SUGGESTED / SAMPLE ACTIVITIES</b></p>
<p><b>9.1 b)</b> Design, implement, evaluate and modify a practice plan for a self-selected skill, to include the motor learning process of analysis of performance; application of principles of movement and training; goal setting; and improvement of personal skills through practice, correction, practicing at a higher level and reassessment.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can assess my skill ability for (selected activity) and set a goal(s) for improvement through a video analysis.</p> <p>I can create a plan to meet my goals in skill improvement for (selected skill), document activities, reassess and reflect on my progress using a practice plan rubric.</p> <p>I can do a final assessment and reflection to improve one or more advanced skills for (selected activity) in my (selected assessment product: i.e., log, journal or portfolio).</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Practice plan elements such as:                             <ul style="list-style-type: none"> <li>○ Analysis of performance, goal setting, training plan, practice logs, reassessment, plan revisions, final assessment, reflection on goal progress and achievement</li> <li>○ Self and/or peer assessments</li> <li>○ Video analysis</li> <li>○ Example <a href="https://www.youtube.com/watch?v=Rv9.onxrvxmg">https://www.youtube.com/watch?v=Rv9.onxrvxmg</a></li> </ul> </li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Practice plan that includes all elements</li> </ul> <p style="text-align: center;">Sample Rubric</p> <p>4 (<i>Beyond what was taught</i>)                      Plan provides rationale for goal and practice/training plan, addresses potential and actual roadblocks and how to address/how they were addressed and/or identifies short- and long-term goals.</p> <p>3 (<i>What was explicitly taught</i>)</p>	<ul style="list-style-type: none"> <li>• Review developing SMART goals: SMART (specific, measurable, attainable, realistic, timely) goals:                             <ul style="list-style-type: none"> <li>○ Specific: A specific goal has a much greater chance of being accomplished than a general goal.</li> <li>○ Measurable: Establish concrete criteria for measuring progress toward the attainment of each goal you set.</li> <li>○ Attainable: When you identify goals that are most important to you, you begin to figure out ways you can make them come true. You develop the attitudes, abilities, skills and financial capacity to reach them.</li> <li>○ Realistic: To be realistic, a goal must represent an objective toward which you are both willing and able to work.</li> <li>○ Timely: A goal should be grounded within a time frame.</li> </ul> </li> <li>• Movement skill phases: Not all fit neatly into three phases and additional phases may be devised or added. Example: The long jump may also be divided into: preliminary movements; run-up; take-off and landing.</li> <li>• Types and methods of skill practice: <a href="http://www.teachpe.com/sports_psych">http://www.teachpe.com/sports_psych</a></li> </ul>	<ul style="list-style-type: none"> <li>• Self-selected student activity (activity list recommendations– see 9.1.a.)</li> <li>• Teach evaluation skills such as:                             <ul style="list-style-type: none"> <li>○ The ability to evaluate the validity of claims.</li> <li>○ The relevance of different types and sources of evidence for different types of claims or questions.</li> <li>○ The sufficiency of evidence to draw a conclusion.</li> <li>○ Application of criteria to the judgment of a skill such as strengths and weaknesses, judging when success has occurred or recognizing when a change in approach is needed and make adjustments.</li> <li>○ Identification of possible errors and biases in claims or conclusions.</li> </ul> </li> <li>• When analyzing movements, teach how to divide the movement performance into phases such as:                             <ul style="list-style-type: none"> <li>○ Preparatory: Movements that prepare such as: backswing in golf or tennis.</li> <li>○ Execution:                                     <ul style="list-style-type: none"> <li>▪ Force-producing movements such as: the forward motion of the tennis forehand shot.</li> </ul> </li> </ul> </li> </ul>

	<p>Plan includes: SMART goal based on analysis of performance, practice/training plan (action steps) designed to meet goal, logs of practice activities, reassessment, reflection on goal progress, plan revisions as appropriate, final assessment and reflection on goal achievement.</p> <p><i>2 (Identify basic elements)</i> Plan includes basic elements of SMART goal, practice plan of activities, reassessment and final assessment.</p> <p><i>1 (With help/prompts/cues)</i> With teacher cues, student can create a SMART goal and identify activities to meet the goal.</p>	<p><a href="#">ology/teaching.php</a></p>	<ul style="list-style-type: none"> <li>▪ Critical instant, the point of contact or the release such as: moment of contact in the tennis serve or the take-off in the long jump.</li> <li>○ Follow-through: Body movements after the execution where the movement slows down such as, the high leg lift after kicking a goal or the golf club after the ball is struck.</li> <li>○ Example of braking down a movement skill into phases: Long Jump – <ul style="list-style-type: none"> <li>▪ Preparatory: The length and speed of the run to the take-off board.</li> <li>▪ Execution: Take-off and flight through the air.</li> <li>▪ Follow-through: The landing.</li> </ul> </li> </ul>
<p><b>Resources:</b> SHAPE America National Standards and Grade-Level Outcomes: American Alliance for Health, Physical Education, Recreation and Dance Grade-Level Outcomes for K-12 Physical Education <a href="http://www.humanmotion.nl/uploads/categories/1408619352-thefunctionalmovementscreenFMSPB.pdf">http://www.humanmotion.nl/uploads/categories/1408619352-thefunctionalmovementscreenFMSPB.pdf</a>; <a href="http://www.humankinetics.com/excerpts/excerpts/the-importance-of-health-fitness-and-wellness">http://www.humankinetics.com/excerpts/excerpts/the-importance-of-health-fitness-and-wellness</a></p>			

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**ESSENTIAL UNDERSTANDING**

- When the body is moving or producing movement it obeys the same physical laws that apply to all types of motion.
- Humans move through a system of levers that cannot be changed but can be utilized more efficiently.

<p><b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?</p>	<p><b>SUGGESTED / SAMPLE ASSESSMENTS</b></p>	<p><b>Terms (Vocabulary) and Content Information</b></p>	<p><b>SUGGESTED / SAMPLE ACTIVITIES</b></p>
<p><b>9.1 c)</b> Apply the concepts and principles of levers, force, motion and rotation in a variety of activities.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can apply the concept of levers when (specific activity i.e. using a racquet to serve a tennis ball) to impact performance and explain it to a peer.</p> <p>I can apply the concept of force when (specific activity i.e. serving a tennis ball) and explain its impact on performance to a partner.</p> <p>I can apply the concept of motion and rotation when (specific activity i.e. topspin on a tennis ball in tennis) and explain its impact on performance through an exit ticket.</p> <p>I can analyze an advanced skill to explain the use of</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Individual or group investigation of an advanced skill and use/application of levers, force, motion and rotation (as appropriate for the skill/activity).</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Demonstration and explanation of the use and impact of levers, force, motion and rotation in a variety of activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Levers: a rigid rod or bar to which a force may be applied to overcome a resistance or weight. In the body: <ul style="list-style-type: none"> <li>○ Bones represent a lever.</li> <li>○ Joints are the axis.</li> <li>○ Muscles contract to apply force to move.</li> <li>○ Speed is increased by applying force through a shorter distance than the resistance is moved. This requires a proportional increase of force. Example – When a tennis racquet is swung the end of the racquet moves faster than the hands, but greater force is needed to swing the racquet than is needed to move the hands alone. A longer handled implement needs more force applied to increase speed of the implement.</li> </ul> </li> <li>• Force: Strength or energy exerted; cause of motion such as force needed to strike for distance and/or accuracy. Absorption, impact of one or more force, speed of objects and generation of force.</li> <li>• Torque: How to generate force– a twisting force that tends to cause rotation or turns things.</li> <li>• Motion– Newton’s Laws: <ul style="list-style-type: none"> <li>○ First Law – Object at rest stays at rest unless acted upon by a force; object in a state of uniform motion tends to remain in motion unless an external force is applied. <ul style="list-style-type: none"> <li>▪ Tennis serve– tennis ball does not leave the hand unless force is applied to toss it upwards; the tossed ball moves upward until either gravity (force) or a racquet</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Activities that demonstrate the concepts and principles: <ul style="list-style-type: none"> <li>○ Levers and force: use of short- and long-handled implements in tennis, golf, ping pong, pickle ball.</li> <li>○ Class discussions on the difference in using long and short-handled instruments– which provides more power or more accuracy–compare ping pong paddle with tennis racquet, golf putter to a driver.</li> <li>○ Motion and rotation: different types of spin and resulting actions. Example: How force can be used to create topspin, backspin and sidespin.</li> </ul> </li> <li>• Class instruction/discussion on the impact of knowledge of levers, force, motion and rotation to achieve advanced skills in selected activities. Example: Force <ul style="list-style-type: none"> <li>○ Using force to stop and start movement of the body.</li> <li>○ Using force to manipulate an object.</li> </ul> </li> </ul>

<p>levers, force, motion and rotation and evaluate the application in my journal.</p>		<p>strike (force) is applied to change the direction of the tossed ball.</p> <ul style="list-style-type: none"> <li>○ Second Law – There is a relationship between an object’s mass, acceleration and the force applied - a force causes only a <i>change in velocity</i> (an acceleration); it does not maintain the velocity of the object. <ul style="list-style-type: none"> <li>▪ The speed of a served tennis ball will vary according to the amount of force applied to the ball with the racquet and according to the weight of the ball (on a humid day, the ball absorbs moisture and will need additional force to achieve the desired speed/acceleration of a tennis ball compared with a tennis ball used on a dry/low humidity day). Professional tennis players achieve service speeds of 120–150 mph.</li> </ul> </li> <li>○ Third Law – For every action there is an equal and opposite reaction. <ul style="list-style-type: none"> <li>▪ Force that the ball exerts on the racket is equal and opposite of the force that the racket exerts on the ball.</li> </ul> </li> </ul> <p>• Newton’s Law of Rotation: Applying a motion to produce spin on a tennis ball, bowling ball, ping pong and the resulting movement.</p> <ul style="list-style-type: none"> <li>○ Backspin on a tennis ball (strike below the center of the mass) keeps the ball’s trajectory low, tends to move the ball right to left and stays low when it bounces.</li> <li>○ Topspin on a tennis ball (strike above the center of the mass -racquet moves from low to high – windshield wiper motion) rotates ball forward in the air, increasing speed of the ball causing it to dip towards the ground, this decreases the distance traveled (hits the ground sooner) and increases its speed as it hits the ground, travels faster and low to the ground.</li> </ul>	<ul style="list-style-type: none"> <li>○ Generating and absorbing the force of an object.</li> <li>○ Using force to increase speed or distance.</li> <li>○ Using force to create spin.</li> <li>○ Using force to alter the outcome.</li> </ul>
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**Resources:**  
SHAPE America National Standards and Grade-Level Outcomes; Sports Science Resources Online  
[http://www.profedf.ufpr.br/rodackibiomecanica\\_arquivos/Books/Introduction%20to%20Sports%20Biomechanics.pdf](http://www.profedf.ufpr.br/rodackibiomecanica_arquivos/Books/Introduction%20to%20Sports%20Biomechanics.pdf);  
<http://www.hhp.txstate.edu/hper/faculty/pankey/bioprin/htm/index.html>; <http://www.slideshare.net/ryanm9/year-11-biomechanics-with-levers-force-summation>;  
<http://www.teachpe.com/biomechanics/angular-motion/>; <http://www.teachpe.com/biomechanics/forces/>

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#### ESSENTIAL UNDERSTANDINGS

- Improvements in performance depend upon the training methods used.
- Proper and comprehensive warm-up and cool-down protocols are essential to short-term exercise performance, as well as long-term injury prevention and general physical health.
- The principles of overload, specificity and progression are highly interconnected and are reciprocally dependent on each other.

<b>VDOE Standard(s) Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.1 d)</b> Apply physiological principles of warm-up, cool down, overload, specificity and progression.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can perform a proper warm-up and cool down for (selected activity) and demonstrate it to my teacher.</p> <p>I can apply (overload, specificity, or progression) to improve skill performance and demonstrate it to my partner.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Assess student's knowledge of warm-up, cool down, overload, specificity and progression.</li> <li>• Teacher Observation: Demonstration of proper warm-up and cool down activities.</li> <li>• Self/Peer/Teacher Assessment: Demonstration of activities that demonstrate overload, specificity and progression.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Demonstration of student-selected / student-created warm-up and cool-down techniques.</li> </ul>	<ul style="list-style-type: none"> <li>• Warm up:             <ul style="list-style-type: none"> <li>○ To increase your breathing and heart rate.</li> <li>○ To increase the energy-releasing reactions in the muscles.</li> <li>○ To promote blood flow to the muscles, supply them with more oxygen and to remove waste products.</li> <li>○ Prepares your muscles for stretching.</li> </ul> </li> <li>• Cool down:             <ul style="list-style-type: none"> <li>○ To help your heart rate and breathing move towards resting levels.</li> <li>○ To help avoid fainting or dizziness.</li> <li>○ To help remove waste products from your muscles, such as lactic acid.</li> <li>○ To help prepare muscles for the next exercise session.</li> </ul> </li> <li>• Principle of specificity: Only those body parts, muscles or systems involved in a workout will be the ones to experience training. Specificity may apply to muscle groups, energy systems or specific movements and activities. Examples-             <ul style="list-style-type: none"> <li>○ Weight training for the upper body will improve arm, shoulder and back strength but activities in the lower body such as squats or lunges will not improve upper body.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Specific lessons on the application of principles of training and examples for students to perform for warm-up, cool down, overload, specificity and progression.</li> <li>• Class instruction/discussion on the physiological principles of warm-up, cool down, overload, specificity and progression to improve performance. Example:             <ul style="list-style-type: none"> <li>○ Warm ups: Stretching is not warming up. Cold muscles do not stretch well. Warming up the core should occur before stretching to reduce injury. When a muscle is tight, range of motion can be compromised. Lack of range of motion causes changes in movement patterns that limit quality of performance and ultimately create injury risk. A tight muscle is a weak muscle. An overstretched or long muscle is also a weak muscle. This is known as the length-tension relationship. This rule says that a muscle must be at mid-length (or on a slight stretch) to generate optimal force.</li> </ul> </li> <li>• Training for maintaining lifelong movement skills.             <ul style="list-style-type: none"> <li>○ Specificity: Training in which engagement is directed specifically at improving movement abilities in life means choosing the right</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Demonstration of student-selected / student-created activities that include correct application of overload, specificity and progression to improve performance.</li> </ul>	<ul style="list-style-type: none"> <li>○ A swimmer that swims several times a week will gain cardiorespiratory endurance but may lack in flexibility benefits.</li> <li>○ If a baseball pitcher wants to work specifically on his accuracy he will target this skill by trying to hit a specific target. If he wants to work on his speed he will target the throwing phase of the pitch.</li> <li>• Principle of overload: A person must work (load) the body in a higher manner than normal in order to improve fitness. <ul style="list-style-type: none"> <li>○ For improved cardiorespiratory endurance: It would mean walking faster and farther or more times a week than normal.</li> <li>○ For improved muscular strength and endurance: It means contracting the muscles for a longer period of time or more frequently during the week or adding weight to the number of repetitions performed.</li> <li>○ For improved flexibility: It would require stretching more often, holding stretches for longer periods of time or stretching beyond the usual point of flexion or extension.</li> </ul> </li> <li>• Principle of progression: The increase in exercise to make it more demanding once the body has adapted to the exercise being done before to continue improvements. <ul style="list-style-type: none"> <li>○ When overload is no longer sufficient, adjustments must be made for fitness level improvement. Training status will benefit by gradually increasing the load that the body is working against. Incorrect overload may bring injury and demotivation due to over-zealous targets.</li> <li>○ Changes to frequency, intensity or amount of time in the exercise program.</li> </ul> </li> </ul>	<p>combination of physical fitness components to help improve movement activities.</p> <p>For example: Strength training results in increases in strength for the muscles being exercised but does little to improve cardiorespiratory endurance. Training can also be specific to the activity of interest.</p> <p>For example: Optimal running performance is best achieved when the muscles involved in running are trained for the movements required. It does not necessarily follow that a good swimmer is a good runner. Specificity also requires that one consider the speed of motion, the number of limbs moving, the direction in which they are moving and the range over which the movement occurs.</p> <ul style="list-style-type: none"> <li>○ Overload: If a person works often (frequency) enough, hard (intensity) enough and long (duration) enough to load the body above its resting level, physical fitness will improve. If this is done regularly over a period of time, the body will gradually adapt to the increase in demands. The term overload does not refer to the idea that one needs to overexert or exert at high intensities to obtain gains in fitness; it simply means that one needs to load the body more than it is usually accustomed to.</li> <li>○ Progression: Increasing the frequency, intensity and/or duration of an activity over periods of time is necessary for continued improvement in physical fitness.</li> </ul> <p>Improvements in physical fitness are realized fairly rapidly at the onset of an exercise or training program. The rate of improvement will gradually slow down and level off (adaptation) if an overload is present (meaning that the load is increasing and that there is progress). At high levels of physical fitness it may even be necessary to change the type(s) of exercise(s) being performed.</p>
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**Resources:**

SHAPE America National Standards and Grade-Level Outcomes; [http://www.teachpe.com/fitness/training\\_principles.php](http://www.teachpe.com/fitness/training_principles.php)

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#### ESSENTIAL UNDERSTANDINGS

- Sports biomechanics uses the scientific methods of mechanics to study the effects of various forces on an individual or object.
- Balance is both a static and dynamic process that makes it possible for the body to maintain its center of gravity over its base of support.
- Core muscles provide the foundation for movement throughout your entire body and are incorporated into almost every movement of the human body acting as a stabilizer to help gain greater balance.

<b>VDOE Standard(s) Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.1 e)</b> Apply biomechanical principles of balance, energy and types of muscle contractions to a variety of activities.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can apply the concept of balance when (specific activity i.e. using a racquet to serve a tennis ball) and explain its impact on performance to a peer.</p> <p>I can apply the concept of energy when (specific activity i.e. court movements in tennis) and explain its impact on performance to my teacher.</p> <p>I can demonstrate muscle contractions in (specific activity) and describe it through an exit ticket.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Assess student understanding of the biomechanical principles of balance, energy and types of muscle contractions.</li> <li>• Oral:             <ul style="list-style-type: none"> <li>○ Describe the use of balance in selected activities. Example: Tennis serve</li> <li>○ Describe the use of energy in selected activities. Example: Tennis play – movement to the ball and when hitting the ball.</li> <li>○ Describe the types of muscle contractions used in selected activities. Example: Tennis backhand.</li> </ul> </li> <li>• Written/Oral: Describe paired muscle movements. Example: Bicep curl             <ul style="list-style-type: none"> <li>○ The agonist, the prime mover which is the biceps,</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Balance: The ability to maintain the body's center of gravity within the limits of stability as determined by the base of support.             <ul style="list-style-type: none"> <li>○ 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).</li> <li>○ An individual's limits of stability is the distance outside of his/her base of support that he/she can go without losing control of the center of gravity.</li> <li>○ 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).</li> <li>○ The lower the center of gravity to the base of support, the greater the stability.</li> <li>○ The nearer the center of gravity to the center of the base of support, the more stable the body.</li> <li>○ Stability is increased with the number of points of contact (two feet vs. one foot)</li> <li>○ Dynamic activities can also be described as those that cause the center of gravity to move in response to muscular activity.</li> </ul> </li> <li>• Movement is stabilized by balance (center of gravity and center of support, muscle actions) and planes of movement (sagittal plane– flexion and extension; frontal plane – adduction and abduction; transverse plane – internal and external rotation; multi-plane movements).</li> </ul>	<ul style="list-style-type: none"> <li>• Discussions on the biomechanical principles of a physical activity. Example:             <ul style="list-style-type: none"> <li>○ Sprinting on the tennis court is produced by a rotary motion of the limbs as they pivot at an individual's joints and the individual's center of gravity rises and falls during each stride.</li> <li>○ In anticipation of an oncoming force, stability may be increased by enlarging the size of the base of support in the direction of the anticipated force.</li> </ul> </li> <li>• Perform activities on different playing surfaces and the changes needed for balance and energy. Example: Tennis on asphalt, grass and clay/dirt.</li> <li>• Activities that demonstrate the differences between static and dynamic balance.             <ul style="list-style-type: none"> <li>○ Static balance means that the athlete is not moving, such as performing a handstand.</li> <li>○ Dynamic balance means that the athlete maintains equilibrium</li> </ul> </li> </ul>

	<p>will contract.</p> <ul style="list-style-type: none"> <li>○ The antagonist which is the triceps, relaxes (lengthens).</li> <li>○ The synergist, which helps to stabilize the bone that is not moving, is the deltoid.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>● Demonstrate and explain the principles of balance, energy and types of muscle contractions for selected activity such as different types of tennis serves- include the effects of different heights of individuals and different body movements that effect balance for the type of serve, different types of racquets (amount of energy needed to use), different serves and the amount of energy needed to execute and different muscle contractions needed to execute.</li> </ul>	<ul style="list-style-type: none"> <li>● The muscles traditionally referred to as “the core,” provide a working surface for our extremities to push off of, which is crucial for any kind of movement. The core is where we generate, absorb and transfer forces to and from our extremities. Strengthening core muscles will improve stability of the lumbar spine which is beneficial for improving balance.</li> <li>● Energy– The ability to do work, work is moving something against a force such as gravity; we use energy for everything we do.</li> <li>● Muscle contractions – <ul style="list-style-type: none"> <li>○ Flexion: Movement that decreases the joint angle, usually anteriorly in the sagittal plane. (Shoulder, knee, elbow, hip movement)</li> <li>○ Extension: Movement that increases the joint angle, usually posteriorly in the sagittal plane. (Shoulder, knee, elbow, hip movement)</li> <li>○ Abduction: Movement away the midline of the body, usually in the frontal plane. (Shoulder, wrist, hip movement)</li> <li>○ Rotation (right or left): Right or left rotation in the transverse plane. (Neck, trunk movement)</li> </ul> </li> <li>● Groupings of muscles according to actions: <ul style="list-style-type: none"> <li>○ Agonist: Referred to as prime movers since they are the muscles that are primarily responsible for generating the movement.</li> <li>○ Antagonistic pairs: Opposing muscles to agonists. One muscle contracts while the other relaxes. Example – The biceps flexes the elbow and the triceps extends it.</li> <li>○ Synergist: Muscles that act around a moveable joint to produce motion similar to or in concert with agonist muscles, allowing for a range of movements.</li> </ul> </li> </ul>	<p>while moving, such as in slalom ski events. Other Examples: In-line skating, landing after a rebound in basketball.</p> <ul style="list-style-type: none"> <li>● Activities that demonstrate different muscle contractions. Examples: <ul style="list-style-type: none"> <li>○ Biceps and triceps: Example of an agonist/antagonist pair: <ul style="list-style-type: none"> <li>▪ During extension the triceps would act as the agonist while the biceps would act as the antagonist. These reverse during flexion.</li> <li>▪ The lower arm is moved upwards (flexed) when the biceps muscle contracts and the triceps muscle is relaxed. It is moved downwards (extended) when the triceps is contracted and the biceps is relaxed.</li> </ul> </li> <li>○ Hamstrings and quadriceps: Control the movement of the lower leg.</li> </ul> </li> <li>● Discussions on the structure and function of the muscular system as they relate to physical performance and stabilization of movement. <ul style="list-style-type: none"> <li>○ Muscles pull on bones to cause movement.</li> <li>○ Muscles work in pairs.</li> <li>○ Muscles work by contracting and relaxing.</li> </ul> </li> </ul>
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**Resources:**

SHAPE America National Standards and Grade-Level Outcomes; <http://www.mananatomy.com/basic-anatomy/actions-skeletal-muscles;>  
[http://www.yogajournal.com/article/practice-section/plumb-perfect/;](http://www.yogajournal.com/article/practice-section/plumb-perfect/) <http://www.teachpe.com/anatomy/movements.php>  
[http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/FitnessBasics/Balance-Exercise\\_UCM\\_464001\\_Article.jsp#.V6eFYP36upo;](http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/FitnessBasics/Balance-Exercise_UCM_464001_Article.jsp#.V6eFYP36upo;)  
<http://www.humankinetics.com/excerpts/excerpts/five-factors-determine-stability-and-mobility>

**VA SOL Standard:** 9.1 The student will perform all basic movement skills and demonstrate movement and biomechanical principles in a variety of activities that may include outdoor pursuits, fitness activities, dance and rhythmic activities, aquatics, individual performance activities and games and sports (net/wall, striking/fielding and goal/target(s)).

**ESSENTIAL UNDERSTANDINGS**

- Perceived competence and enjoyment in physical activities are cited as being essential influences on young people's physical activity participation.
- Beliefs about one's competency in fitness activities are formed by information gathered from the environment and significant others such as peer comparisons or teacher feedback.

<p><b>VDOE Standard(s)</b>  <b>Student Friendly Language</b>                      What will the student know and be able to do?</p>	<p><b>SUGGESTED / SAMPLE ASSESSMENTS</b></p>	<p><b>Terms (Vocabulary) and Content Information</b></p>	<p><b>SUGGESTED / SAMPLE ACTIVITIES</b></p>
<p><b>9.1 f)</b> Demonstrate competency in one or more specialized skills in health-related fitness activities.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can demonstrate the specialized skill (selected skill) and explain how it improves my health-related fitness to a peer.</p> <p>I can perform with competency the specialized skill (selected skill) and demonstrate it using a (checklist/peer assessment).</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Identify simple and more complex health-related fitness activities such as stretching and yoga, running and hurdles, dumbbells and kettle bells, walking and race walking and cycling at different terrains.</li> <li>• Self/Peer Assessment: Evaluation of specialized skill performance. Examples of assessment pieces:                             <ul style="list-style-type: none"> <li>○ Performer appears to be in complete control of their actions.</li> <li>○ Actions are refined and precise.</li> <li>○ Actions seem effortless, energy is not wasted.</li> <li>○ Dynamics of the action, degree of power/touch or speed are adapted to each situation.</li> <li>○ Even complicated actions appear simple.</li> <li>○ Skills can be linked into complex combinations with ease.</li> <li>○ The correct action is always selected for the situation.</li> <li>○ The action is applied at the correct time.</li> <li>○ Actions are adapted with flair and creativity to overcome opponents.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Health-related fitness:                             <ul style="list-style-type: none"> <li>○ Muscular Strength: The ability of a muscle or a group of muscles, to exert force for a brief period of time. A person's strength can be expressed as absolute strength (the actual weight lifted) or as relative strength (the weight lifted, divided by the person's body weight).</li> <li>○ Muscular Endurance: The ability of a muscle or a group of muscles, to sustain repeated contractions or to continue applying force against a fixed object. The person's endurance is expressed as the number of repetitions completed without stopping for a set period of time (often one minute).</li> <li>○ Flexibility: The ability to move joints through their full range of motion. A person's flexibility is usually expressed in how far a joint can be moved or the degrees through which a joint can be moved.</li> <li>○ Cardiovascular Endurance: The ability of the cardiovascular system (heart, blood, blood vessels) and respiratory system (lungs, air passages) to deliver oxygen and other nutrients to the working muscles and to remove wastes.</li> <li>○ Body Composition: Refers to the makeup of the body in terms of lean mass (muscle, bone, vital tissue and organs) and fat</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Specialized health-related fitness activities, may include activities that address multiple health-related fitness components such as:                             <ul style="list-style-type: none"> <li>○ Track and field activities (hurdles, shot put).</li> <li>○ Mind/body activities (flexibility and strength).</li> <li>○ Swimming (strength and endurance).</li> <li>○ Mountain biking.</li> <li>○ Resistance and cardio activities.</li> </ul> </li> <li>• Teacher think aloud or demonstration of a self/peer assessment. Examples:                             <ul style="list-style-type: none"> <li>○ Position yourself to see the critical components of the skill(s). Use multiple vantage points.</li> <li>○ Observe performance several times to identify consistent performance problems.</li> <li>○ Use the whole-part-whole observation method.</li> <li>○ Be sure to focus both on the performer and any implements.</li> <li>○ Evaluate the overall effectiveness of the movement.</li> <li>○ Use a performance checklist to guide your efforts.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ The performer can carry out skills automatically without having to think them through.</li> <li>○ There is a high success rate of the outcome of their actions.</li> </ul> <ul style="list-style-type: none"> <li>● Teacher feedback to performance of specialized skills.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>● Checklist: Demonstrate specialized skill with competence (adequate ability).</li> <li>● Peer Assessment: Peer assessments can be used as assessments of learning when the assessment is focused on the ability of the peer assessor to make an assessment and provide appropriate feedback/justification; not focused on how the student being observed performed.</li> </ul>	<p>mass. Good body composition has strong bones, adequate skeletal muscle size, a strong heart and a low amount of fat mass. Regular physical activity and exercise will help decrease body fat and increase or maintain muscle mass, increase bone mass and improve heart function. Although body composition entails muscle, bone and fat, it is often expressed only as percentage of body fat.</p> <ul style="list-style-type: none"> <li>● Self/peer assessments: <ul style="list-style-type: none"> <li>○ Fully train students on how to assess other students (how to use a skill assessment rubric or checklist).</li> <li>○ Require assessors to justify their judgments.</li> <li>○ Create an environment that feels safe for interpersonal risk-taking so that students will feel more confident in evaluating.</li> <li>○ Emphasize the main focus in the assessment should be useful feedback.</li> <li>○ Model appropriate, constructive criticism and descriptive feedback.</li> <li>○ Small feedback groups so that feedback can be explained and discussed with the receiver.</li> <li>○ Encourage students to be as supportive as possible in critiquing the work of others.</li> <li>○ Stress benefits of being a peer assessor, such as it helps them evaluate their own work and become more self-directed learners.</li> <li>○ Train students how to interpret feedback so that they can make appropriate connections between the feedback received and the quality of their work.</li> </ul> </li> </ul>	
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**Resources:**

SHAPE America National Standards and Grade-Level Outcomes; <http://www.teachpe.com/fitness/health.php>;  
[http://sydney.edu.au/education\\_social\\_work/groupwork/docs/SelfPeerAssessment.pdf](http://sydney.edu.au/education_social_work/groupwork/docs/SelfPeerAssessment.pdf)

**VA SOL Standard:** 9.2 The student will explain the structures and functions of the body and how they relate to and are affected by human movement.

**ESSENTIAL UNDERSTANDING**

- Each of our body systems is interconnected and dependent on each other.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.2 a)</b> Explain and apply selected scientific principles, to include physiological (warm-up, cool down, overload, specificity and progression) and biomechanical (levers, types of muscle contractions and force) that aid in the improvement of movement skills.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can create and implement an activity plan that includes correct warm-up and cool-down techniques and explain how they improve performance in a summary paragraph.</p> <p>I can create and implement an activity plan that includes correct application of overload, specificity and progression and demonstrate it within a written activity plan.</p> <p>I can demonstrate advanced skills and explain results of the skill performance (success or need for improvement) in relation to levers, force and types of</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Activity plan elements as plans are being developed and implemented.</li> <li>• Demonstration and analysis of an advanced skill of self or partner (video analysis recommended) - explain results of the advanced skill performed (success or need for improvement) in relation to levers, types of muscle contractions and force.</li> <li>• Self/Peer Assessment: Analysis of advanced skill of self or partner.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Demonstration of advanced skill with analysis of performance in relation to balance, energy and types of muscle contractions.</li> <li>• Activity plan that includes:               <ul style="list-style-type: none"> <li>○ Correct warm-up and cool-down techniques.</li> <li>○ Correct application of overload, specificity and progression to improve performance.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Additional information in 9.1.c. and 9.1.e.</li> <li>• Principle of specificity: See 9.1.d</li> <li>• Principle of overload: See 9.1.d</li> <li>• Principle of progression: See 9.1.d</li> <li>• Warm-up: See 9.1.d for additional information. – The importance of a structured warm-up routine should not be underestimated in relation to preventing injury, having optimal performance and maximizing enjoyment. An effective warm-up increases both the respiratory rate and the heart rate. This helps increase the body's core temperature, while also increasing the body's muscle temperature through an increase in the delivery of oxygen and nutrients to the working muscles. Increasing muscle temperature helps make the muscles loose, supple and pliable. Warm-up activities are also important because they provide the participant with an opportunity to prepare mentally for the upcoming exercise session. A warm-up should consist of light physical activity for 5 to 10 minutes of exercise, such as walking, slow jogging, knee lifts, arm circles or trunk rotations. Low-intensity movements that simulate movements to be used in the activity can also be included in the warm-up. Static stretching, per se, is not considered part of a warm-up routine. A warm-up can consist of a lower intensity form of the exercise about to commence.</li> </ul>	<ul style="list-style-type: none"> <li>• Activity plan may build upon plan for 9.1.b. or be an extension of that plan during a different quarter or unit of instruction.</li> <li>• Apply selected scientific principles Example: Force           <ul style="list-style-type: none"> <li>○ Application of force to control distance of an object in a target sport (specific activity i.e., golf putt).</li> <li>○ Examples of class discussions:               <ul style="list-style-type: none"> <li>▪ Objects will spin in the direction the force is applied.</li> <li>▪ The weight of a body segment or the entire body times the speed of acceleration determines the force. Example: In throwing a ball, the force applied to the ball is equal to the weight of the arm times the speed of acceleration of the arm.</li> </ul> </li> </ul> </li> <li>Example: Levers           <ul style="list-style-type: none"> <li>○ In throwing, the angular motion of the levers (bones) of the body (trunk, shoulder, elbow and wrist) is used to give linear motion to the ball when it is released</li> <li>○ Skeletal muscles work together with bones and joints to form lever systems. The muscle acts as the effort force; the joint acts as the fulcrum; the bone that the muscle moves acts as the lever; and the object being moved acts as the load.</li> </ul> </li> </ul>

<p>muscle contractions within my journal using a rubric.</p>	<p>Sample Rubric for Activity Plan:</p> <p>4 (<i>Beyond what was taught</i>) Plan provides rationale for activities and selected daily training activities, addresses potential and actual roadblocks and how to address/how they were addressed and/or addresses modifications needed as plan progresses.</p> <p>3 (<i>What was explicitly taught</i>) Plan includes: activities to improve performance; activity plan over several weeks (may be longer) that includes correct and explicit application of overload, specificity and progression; specific daily activities training plan - daily training plan includes correct warm-up and cool-down techniques.</p> <p>2 (<i>Identify basic elements</i>) Plan includes activities, one warm up and cool down and may include some elements of specificity, overload and progression.</p> <p>1 (<i>With help/prompts/cues</i>) With teacher cues, student can list activities to improve performance, list warm up and cool down used in class and/or provide an example of activities that address elements of specificity, overload and progression.</p>	<ul style="list-style-type: none"> <li>• Force: The effect that one object has on another. <ul style="list-style-type: none"> <li>○ Production of Force – Produced by the actions of muscles. The stronger the muscles, the more force the body can produce.</li> <li>○ Application of Force – The force of an object is most effective when it is applied in the direction that the object is to travel.</li> <li>○ Absorption of Force – The impact of a force should be gradually reduced (“give with the force”) and spread over a large surface.</li> </ul> </li>   <li>• Relationship between warm-ups and generating optimal force: When a muscle is tight, range of motion can be compromised. Lack of range of motion causes changes in movement patterns that limit quality of performance and ultimately create injury risk. A tight muscle is a weak muscle. An overstretched or long muscle is also a weak muscle. This conundrum is known as the length-tension relationship. This rule says that a muscle must be at mid-length (or on a slight stretch) to generate optimal force.</li>   <li>• Levers: Rotate about an axis as a result of force being applied to cause its movement against a resistance or weight. In the body: <ul style="list-style-type: none"> <li>- Bones represent the bars.</li> <li>- Joints are the axis.</li> <li>- Muscles contract to apply force.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Video student performance of advanced skills to instruct and to analyze student knowledge.</li>   <li>• Discussions on the effects of warm ups and cool downs for improvement of movement skills. Warm-up effects: <ul style="list-style-type: none"> <li>○ Dilates capillaries and raises the pulse rate which enables more blood and oxygen to be available for the muscles.</li> <li>○ Raises body temperature which enhances the rate of ATP conversion.</li> <li>○ Prepares muscles to operate over its full range.</li> <li>○ Reduces the risk of injury.</li> <li>○ Produces hormones like epinephrine, endorphins, growth hormone and testosterone, all of which increase the energy available for your workout.</li> </ul> </li> </ul> <p>Effects of cool downs:</p> <ul style="list-style-type: none"> <li>○ Reducing to lighter exercises will help with the removal of lactic acid.</li> <li>○ Prevents blood pooling that causes dizziness.</li> <li>○ Stretching improves flexibility.</li> <li>○ Slow down the heart rate.</li> <li>○ Slows down the blood flow.</li> <li>○ Slows down nervous system activity.</li> <li>○ Helps minimize muscle fatigue and soreness.</li> </ul>
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**Resources:**

SHAPE America National Standards and Grade-Level Outcomes; [http://www.teachpe.com/fitness/training\\_principles.php](http://www.teachpe.com/fitness/training_principles.php)  
[http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/FitnessBasics/Warm-Up-Cool-Down\\_UCM\\_430168\\_Article.jsp#.V7G32bf6vcs](http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/FitnessBasics/Warm-Up-Cool-Down_UCM_430168_Article.jsp#.V7G32bf6vcs);  
[http://www.teachpe.com/alevel\\_muscles.php](http://www.teachpe.com/alevel_muscles.php); <http://www.teachpe.com/anatomy/movements.php>;  
[https://www.google.com/search?q=biomechanical+principles+\(e.g.,+center+of+gravity,+base+of+support\)&biw=1536&bih=696&tbm=isch&tbo=u&source=univ&sa=X&ved=0ahUKEWjU7\\_Kf6qzOAhWDbiYKHReiDG0QsAQIKQ&dpr=1.25](https://www.google.com/search?q=biomechanical+principles+(e.g.,+center+of+gravity,+base+of+support)&biw=1536&bih=696&tbm=isch&tbo=u&source=univ&sa=X&ved=0ahUKEWjU7_Kf6qzOAhWDbiYKHReiDG0QsAQIKQ&dpr=1.25);  
<http://www.teachpe.com/biomechanics/forces/>; <http://www.mananatomy.com/basic-anatomy/actions-skeletal-muscles>

**VA SOL Standard:** 9.2 The student will explain the structures and functions of the body and how they relate to and are affected by human movement.

**ESSENTIAL UNDERSTANDINGS**

- When the body is moving or producing movement it obeys the same physical laws that apply to all types of motion.
- Humans move through a system of levers that cannot be changed but can be utilized more efficiently.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.2 b)</b> Analyze and evaluate proficient and efficient movement in relation to how movement is directed, to include the type of muscle action that directs a movement (concentric, eccentric and isometric), the direction the body part moves relative to its joints (abduction, adduction, flexion and extension) and planes of movement.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can demonstrate efficiency of movement in (selected advanced skill) with proficiency/mastery using a checklist.</p> <p>I can explain how efficiency of movement was achieved through muscle actions, muscle contractions and planes of movement and demonstrate it through a graphic organizer.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Pick a movement (self/group) and list the biomechanical principles associated with the movement. Example – Golf swing:             <ul style="list-style-type: none"> <li>○ Concentric movements in the backswing, eccentric in downward swing.</li> <li>○ Abduction and adduction of arm movements.</li> <li>○ Frontal plane with arm movements, sagittal with elbow movements, transverse with shoulder and hip rotations.</li> <li>○ Impact.</li> <li>○ Stability.</li> </ul> </li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Explain how movement efficiency is achieved for a selected activity/skill in terms of the type of muscle action (concentric, eccentric and isometric), direction the body parts move relative to the joints used (abduction, adduction, flexion and extension) and in what planes of movement the action occurred.</li> </ul>	<ul style="list-style-type: none"> <li>• Muscle action             <ul style="list-style-type: none"> <li>○ Concentric contraction (positive contraction): Contraction that shortens the muscle as it acts against a resistive force (biceps curl– bicep muscles shorten as the weight is pulled toward the body).</li> <li>○ Eccentric contraction (negative contraction): Contraction that lengthens the muscle as it produces force (lowering the weight during biceps curl lengthens the bicep muscles as the weight is lowered back to a resting position – force is produced by the biceps to allow for a controlled return to a resting position as opposed to allowing gravity to pull the weight down)</li> <li>○ How much time is spent in each phase (concentric and eccentric contractions) will affect results. Concentrating on eccentric contractions at higher weights is referred to as negative training.</li> <li>○ Isometric muscle contraction without appreciable shortening or change in distance between its origin and insertion.</li> </ul> </li> <li>• Movement of body part in relation to its joints: See additional information in 9.1.e.             <ul style="list-style-type: none"> <li>○ Abduction: Muscle contraction without appreciable shortening or change in distance between its origin and insertion.</li> <li>○ Adduction: Movement of a body part toward the median plane (of the body, in the case of limbs; of the hand or foot, in the case of digits).</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Provide video of basic and advanced skills– compare and contrast basic and advanced skills in terms of efficiency and proficiency of movement.</li> <li>• Use video and/or demonstration of advanced skills to discuss how movement is directed, to include the type of muscle action that directs a movement (concentric, eccentric and isometric), the direction the body part moves relative to its joints (abduction, adduction, flexion and extension) and planes of movement. Examples of planes of movement:             <ul style="list-style-type: none"> <li>○ Movements that involve forward and backward motion are referred to as sagittal plane movements. When a forward roll is executed, the entire body moves parallel to the sagittal plane.</li> <li>○ Marching, bowling and cycling are all sagittal plane movements.</li> <li>○ Jumping jacks, side stepping and sidekicks in soccer require frontal plane movement at certain body joints.</li> <li>○ A cartwheel is an example of total-body frontal plane movement.</li> <li>○ A total-body transverse plane movement include a twist executed by a diver, airborne gymnast and a dancer’s pirouette.</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>○ Flexion: Bending movement around a joint in a limb (such as knee or elbow) that decreases the angle between the bones of the limb at the joint.</li> <li>○ Extension: An unbending movement around a joint in a limb that increases the angle between the bones of the limb at the joint.</li> <li>● Planes of movement <ul style="list-style-type: none"> <li>○ Sagittal plane: Vertical plane passing from the rear (posterior) to the front (anterior), dividing the body into left and right halves. It is also known as the anteroposterior plane. Most sport and exercise movements that are almost two-dimensional, such as running, long jumping, biking and rowing, take place in this plane.</li> <li>○ Frontal plane: Vertical and passes from left to right, dividing the body into posterior and anterior halves (front and back). When moving along this plane, we are moving toward or away from the midline. Adduction and abduction are movements along this plane.</li> <li>○ Transverse plane: Divides the body into top (superior) and bottom (inferior) halves. Any time we rotate a joint we are moving along the transverse plane.</li> </ul> </li> <li>● Efficient movement: Exemplified by technique and fitness in running, quickness and effort in tennis, speed and control in a golf swing.</li> </ul>	<p>Example of planes and the direction the body part moves relative to its joints: Running – Occurs in three planes.</p> <ul style="list-style-type: none"> <li>○ Sagittal: Flexion and extension are the movements. Flexion occurs in the legs at the beginning of swing phase of running, when the limb is moving forwards. Extension occurs in the stance limb, reaching its full extension.</li> <li>○ Frontal: Abduction and adduction are the movements. Observing the waistline, abduction is movement away from the middle line of the body and adduction is movement towards the middle line. Frontal plane movement is also seen in the rear foot when the shoe strikes the ground this is termed ankle inversion and eversion</li> <li>○ Transverse: Rotation occurs in this plane between the pelvis, ribcage and shoulders.</li> </ul> <p>Examples of the direction the body part moves relative to its joints:</p> <ul style="list-style-type: none"> <li>○ Flexion, such as tuck jump, front dumbbell raise, bicep curl.</li> <li>○ Extension, such as straight leg deadlift, triceps press down, military press.</li> <li>○ Adduction, such as cable crossover pulldown, supine dumbbell fly.</li> <li>○ Abduction, such as straight arm dumbbell side raise, star jump.</li> </ul>
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**Resources:**

SHAPE America National Standards and Grade-Level Outcomes; <http://www.teachpe.com/anatomy/movements.php>;  
<http://www.teachpe.com/anatomy-physiology/anatomy-physiology-resources/>; <http://www.teachpe.com/biomechanics/>;  
<http://www.teachpe.com/biomechanics/angular-motion/>; <http://www.teachpe.com/index-quiz.php>; <http://www.aw-bc.com/info/hopson/assets/pdf/chapter5.pdf>

**VA SOL Standard:** 9.2 The student will explain the structures and functions of the body and how they relate to and are affected by human movement.

**ESSENTIAL UNDERSTANDINGS**

- Multiple body systems are involved in producing energy during physical activity.
- Physical activity is needed to improve efficiency of the heart, keep blood vessels more elastic and to increase the number of capillaries that bring oxygen to muscles.
- If you don't use – you lose (body tissue, efficiency, capacity)

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.2 c)</b> Apply the concepts and principles of the body's metabolic response to short- and long-term physical activity.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can apply and explain how the body makes energy to move in activity of short duration and activity of long duration in a summary paragraph.</p> <p>I can apply the principles of metabolic response while (short-term activity such as long jumping) and while (long-term activity such as running hurdles) and demonstrate it to a peer.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Written: Student knowledge of how body systems function to move the body (basics of cardiovascular, respiratory, digestive system).</li> <li>• Research body system responses to activity.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Student selects a short duration and long duration activity and explains how the body uses/produces energy during the activities.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Metabolic response:</b> A metabolic response is any reaction by the body to a specific influence or impact. Metabolism is a general term describing the organic process in any cellular structure.             <ul style="list-style-type: none"> <li>○ A metabolic response can occur with respect to individual cells, a gland, an organ or a process such as the cardiovascular system.</li> <li>○ Metabolism is often understood in terms of the metabolic rate, which is the amount of energy expended by the body in a given period.</li> <li>○ Metabolism is also a variable in the assessment of human performance.</li> <li>○ Metabolic function is subject to such individual factors as age, heredity, gender, level of physical fitness and others. The body may exhibit a metabolic response to any type of external factor or change.</li> <li>○ Changes in the physical intensity of athletic activity, either by training practices or competitive schedule, will generate a metabolic response. This response is particularly evident when assessing the nature of muscle composition in an athlete. When an athlete seeks to improve endurance ability, the training program will correspondingly focus on endurance exercise. The muscle groups involved in the generation of power in the exercise, each with a set pattern of distribution between fast-twitch and slow-twitch fibers, will respond by making a slight adaptation in which more fast-twitch fibers are utilized for the muscle.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Anaerobic and aerobic activities to explain and discuss how the body produced energy to move.</li> <li>• May be instructed in connection with 9.2.e.</li> <li>• Visuals in the form of charts.</li> </ul>

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|  |  | <ul style="list-style-type: none"><li>• Meeting the demands of working muscles involves nearly every system in the body.<ul style="list-style-type: none"><li>○ Cardiovascular system ramps up heartbeat to move blood to the muscles.</li><li>○ The respiratory system replenishes that blood with oxygen when lungs fill with air.</li><li>○ The digestive system shuts down to preserve energy for where it's most needed.</li><li>○ The skin processes heat from ongoing chemical and metabolic reactions that might otherwise build up to dangerous levels.</li></ul></li><li>• Mitochondria, the "powerhouses" of cells, transform food, in the form of stored carbohydrates and fats, into chemical energy, in the form of more ATP. To do this, they require oxygen. See 9.2.e.</li></ul> |  |
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**Resources:**

SHAPE America National Standards and Grade-Level Outcomes; NOVA PBS Learning Media – How the body responds to exercise;  
<http://www.pbslearningmedia.org/resource/0er08.sci.life.reg.exercise/how-the-body-responds-to-exercise/>;  
<http://www.faqs.org/sports-science/Je-Mo/Metabolic-Response.html>; <https://www.cdc.gov/nccdphp/sgr/pdf/chap3.pdf>

**VA SOL Standard:** 9.2 The student will explain the structures and functions of the body and how they relate to and are affected by human movement.

**ESSENTIAL UNDERSTANDINGS**

- The principle of specificity, overload and progression (SOP) are interrelated to the principle of frequency, intensity, time and type of exercise (FITT).
- In order to improve fitness or skill performance, the body must be overloaded in a safe and progressive manner.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.2 d)</b> Explain the body's response to the principles of specificity, overload and progression (SOP) in relation to frequency, intensity, time and type of exercise (FITT).</p> <p><b>Suggested Learning Targets:</b></p> <p>I can explain how to improve (selected activity or advanced skill) in relation to specificity, overload and progression (SOP) and in relation to frequency, intensity, time and type of exercise (FITT) using a graphic organizer.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Written: Assess background knowledge of terms and applications (descriptions) for SOP and FITT.</li> <li>• Oral:           <ul style="list-style-type: none"> <li>○ Share the principles of specificity, overload and progression (SOP).</li> <li>○ Explain SOP in relation to frequency, intensity, time and type of exercise (FITT).</li> </ul> </li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Student selects an activity or advanced skill to improve and describes how they would use SOP and FITT to make improvements (should include acknowledgement of under- and over-exercise).</li> </ul>	<ul style="list-style-type: none"> <li>• Overload: See additional information in 9.1.d – To improve fitness, one must load the body in a higher manner than normal (longer duration of activity, more frequency, higher weight, more often)– the body responds by increasing muscular contractions, strengthening and improving efficiency of body responses, increasing the number of capillaries to bring oxygenated blood to muscle cells. Caution must be taken not to overload to the point of exertion which may lead to injury.</li> <li>• Specificity: See additional information in 9.1.d – Only those muscles or muscle groups used will benefit from the activity a person engages in (ex. Upper body strength does not improve by walking, jogging or running).</li> <li>• Progression: See additional information in 9.1.d – Rate of which overload is applied; caution when overload is done too rapidly or too sporadically. This is where there is a connection to FITT.</li> <li>• FITT is related and interconnected to the principles of SOP; frequency may impact progression, intensity is connected to overload and progression, time is related to overload and progression, type is related to specificity.</li> </ul>	<ul style="list-style-type: none"> <li>• Look for opportunities to combine with skill improvement planning or fitness improvement planning (9.1.b, 9.2.a, 9.3.a).</li> <li>• Instruction on how increasing the intensity, volume or frequency of an exercise will overload your body, forcing it to adapt. Examples           <ul style="list-style-type: none"> <li>○ Increase Exercise Intensity: Increase the weight lifted or the speed you move an object or your body through space.</li> <li>○ Increase Exercise Volume: Increase the number of repetitions, sets or distance you move an object or your body through space.</li> <li>○ Increase Exercise Frequency: Increase the number of times you complete the same exercise in a week or month.</li> </ul> </li> <li>• Instruction on the body's response to the principles of SOP.           <ul style="list-style-type: none"> <li>○ Specificity of Training:               <ul style="list-style-type: none"> <li>▪ Resistance work (high load, few reps) improves muscle strength.</li> <li>▪ Stretching exercises improves flexibility.</li> <li>▪ Resistance work (light load, many reps) improves muscle endurance.</li> <li>▪ Endurance exercises improve cardiorespiratory endurance.</li> </ul> </li> <li>○ Overload Principle:               <ul style="list-style-type: none"> <li>▪ Physiological changes, moving to higher levels of fitness.</li> </ul> </li> <li>○ Progression: Increasing the frequency, intensity and duration of activities over a period of time will cause improvement in physical activity.</li> </ul> </li> </ul>

**Resources:**

SHAPE America National Standards and Grade-Level Outcomes; <http://www.ode.state.or.us/teachlearn/subjects/pe/curriculum/fittprinciple.pdf>;  
<http://stretchcoach.com/articles/fitt-principle/>; [http://www.teachpe.com/fitness/training\\_principles.php](http://www.teachpe.com/fitness/training_principles.php);

**VA SOL Standard:** 9.2 The student will explain the structures and functions of the body and how they relate to and are affected by human movement.

**ESSENTIAL UNDERSTANDINGS**

- Two respiration systems are used by the body for energy and the systems are dependent upon the duration of the activity.
- Body systems are interconnected and dependent upon one another.

<p><b>VDOE Standard(s)</b>  <b>Student Friendly Language</b>            What will the student know and be able to do?</p>	<p><b>SUGGESTED / SAMPLE ASSESSMENTS</b></p>	<p><b>Terms (Vocabulary) and Content Information</b></p>	<p><b>SUGGESTED / SAMPLE ACTIVITIES</b></p>
<p><b>9.2 e)</b> Explain the anaerobic respiration (ATP-PC and Lactic Acid System) and aerobic respiration systems used for energy during activity.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can explain how the body makes energy to move in activity of short duration (less than 2 minutes) using the anaerobic respiration (ATP-PC and Lactic Acid System) by telling a peer.</p> <p>I can explain how the body makes energy to move in activity of long duration (more than 2 minutes) using the aerobic respiration systems through an exit ticket.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Written: Student knowledge of terms: aerobic and anaerobic and associated activities.</li> <li>• Students research a question such as – is a 400 meter run an anaerobic or aerobic activity?</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Student selects a short duration and long duration activity and explains how the body uses/produces energy during the activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Anaerobic: Without oxygen; the body relies on anaerobic processes for the first couple of minutes of activity; produces fast bursts of energy for short, powerful bursts.</li> <li>• Aerobic: With oxygen; aerobic system produces the largest amounts of energy, at the lowest intensity; used for long-term, steady paced exercise and day-to-day activities.</li> <li>• Anaerobic respiration is comprised of two systems           <ul style="list-style-type: none"> <li>○ ATP-PC: immediate and limited energy source, ATP is stored in small amounts in muscles; essential at the onset of activity and short-term high-intensity activities (sprinting, weight-lifting, throwing a ball), 1-30 seconds.</li> <li>○ Lactic Acid System: (aka Anaerobic Glycolysis); Lactic acid is thought to interfere with muscle contraction due to disrupting the binding of calcium to troponin; acidity also stimulates free nerve endings within the muscle, causing pain; due to lactic acid production, this energy system can only be predominant for up to 2 minutes.</li> </ul> </li> <li>• Aerobic respiration: (aka Aerobic Glycolysis): Breakdown of carbohydrates to produce ATP; slow, uses either 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; produced large amounts of energy at the lowest intensity.</li> </ul>	<ul style="list-style-type: none"> <li>• Instruct these concepts in connection to 9.2.c.</li> <li>• Use “ATP-PC images” in a search engine online to find charts to help explain concepts.</li> <li>• Use a variety of activities to explain the anaerobic and aerobic systems.</li> <li>• Introduce ATP            Example: When you exercise, your muscles act something like electric motors. Your muscles take in a source of energy and they use it to generate force. An electric motor uses electricity to supply its energy. Your muscles are biochemical motors and they use a chemical called adenosine triphosphate (ATP) for their energy source. During the process of "burning" ATP, your muscles need three things:           <ul style="list-style-type: none"> <li>○ They need oxygen, because chemical reactions require ATP and oxygen is consumed to produce ATP.</li> <li>○ They need to eliminate metabolic wastes (carbon dioxide, lactic acid) that the chemical reactions generate.</li> <li>○ They need to get rid of heat. Just like an electric motor, a working muscle generates heat that it needs to get rid of.</li> </ul> </li> </ul>

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|  |  | <ul style="list-style-type: none"><li>• During exercise muscles continually contract and relax. This requires energy. The energy comes mainly from fat and carbohydrates mixed with oxygen. The body has to move a large amount of oxygenated blood from the lungs to tiny muscle cells. The capacity to do this relies on how well the heart is beating, how well the vessels expand that carry the oxygenated blood, how elastic the blood vessels are, how many capillaries there are to carry the oxygenated blood (VO<sub>2</sub>max is a measure of the body's ability to extract and utilize oxygen during exercise).</li></ul> |  |
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**Resources:**

SHAPE America National Standards and Grade-Level Outcomes; NOVA PBS Learning Media – How the body responds to exercise  
<http://www.pbslearningmedia.org/resource/oer08.sci.life.reg.exercise/how-the-body-responds-to-exercise/>;  
[http://www.teachpe.com/physiology/energy\\_systems.php](http://www.teachpe.com/physiology/energy_systems.php); [http://www.teachpe.com/anatomy/aerobic\\_respiration.php](http://www.teachpe.com/anatomy/aerobic_respiration.php)

**VA SOL Standard:** 9.2 The student will explain the structures and functions of the body and how they relate to and are affected by human movement.

**ESSENTIAL UNDERSTANDINGS**

- Feedback is important to master advanced skills.
- Feedback is useful when it is focused on the goal of the skill and is specific, objective and provided in terms understood by the recipient of the feedback.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.2 f)</b> Analyze movement performance and utilize feedback to learn or to improve the movement skills of self and others.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can evaluate my performance of (advanced skill) and use feedback from the teacher and/or others to learn or improve performance of the skill through reflective writing and teacher observation.</p> <p>I can analyze the performance of a peer and provide appropriate and meaningful feedback to help them learn or improve the skill using a peer assessment checklist.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Assess student background knowledge of how to provide feedback.</li> <li>• Provide students with a basic skill and have them analyze for the component elements to be successful.</li> <li>• Apply their analysis of a skill to practice evaluating a peer.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Self or peer assessment of performance with feedback of an advanced skill (using student-generated or generic video that all students may use for assessment). Example: Tennis serve. Analysis of videotapes relative to the five components of the serving motion: (a) grip and stance, (b) ball toss, (c) racket preparation, (d) arm extension and (e) follow through. Rubric/checklist provided to score each component. Students correct and practice the serve then videotape each other again and reassess.</li> </ul>	<ul style="list-style-type: none"> <li>• Helpful feedback is goal-referenced; tangible and transparent; actionable; user-friendly (specific and personalized); timely; ongoing; and consistent.</li> </ul> <p>Effective feedback is concrete, specific and useful; it provides actionable information. Thus, "Good job!" and "You did that wrong" are not feedback at all. Learners don't know what was "good" or "wrong" about what they did. See 9.1.f – for additional information.</p> <ul style="list-style-type: none"> <li>• Learners may need to receive feedback on what they did, not advice about what to do when first learning a task.</li> <li>• Too much feedback is also counterproductive; better to help the performer concentrate on only one or two key elements of performance.</li> <li>• When analyzing movements, divide the movement performance into three phases:             <ul style="list-style-type: none"> <li>○ Preparatory: Movements that prepare such as, backswing in golf or tennis.</li> <li>○ Execution:                 <ul style="list-style-type: none"> <li>- Force-producing movements such as, the forward motion of the tennis forehand shot.</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• May be combined during instruction of activities for 9.1.a.</li> <li>• Opportunities should be provided for teacher modeling and student practice of how to provide specific feedback with reasoning/justification, conclusions and encouragement. See 9.1.f – for additional information. Examples:             <ul style="list-style-type: none"> <li>○ Be descriptive rather than evaluative (e.g., "Did you know you are not stepping with the opposite foot when you throw the ball?" rather than "It was really bad the way you threw that ball.")</li> <li>○ Own the feedback -- Use 'I' statements. (e.g., "I noticed", "I saw", "I heard")</li> <li>○ Use positive language that suggests that any problems are time-limited, situation specific and capable of solution. (e.g., Just at the moment you don't....; in this instance you seemed; you haven't yet worked out a way of..... next time you might want to.....)</li> </ul> </li> <li>• Provide rubrics or list(s) of skill cues to help students provide accurate and specific feedback.</li> <li>• Use of student video (personal devices) to evaluate performance is recommended.</li> </ul>

		<ul style="list-style-type: none"> <li>- Critical instant, the point of contact or the release such as, moment of contact in the tennis serve or the take-off in the long jump.</li> <li>○ Follow-through: Body movements after the execution where the movement slows down such as, the high leg lift after kicking a goal or the golf club after the ball is struck. Example of braking down a movement skill into phases: Long Jump – <ul style="list-style-type: none"> <li>- Preparatory: The length and speed of the run to the take-off board.</li> <li>- Execution: Take-off and flight through the air.</li> <li>- Follow-through: The landing.</li> </ul> </li> <li>○ Movement skill phases may not all fit neatly into three phases and additional phases may be devised or added. Example: The long jump may also be divided into: preliminary movements; run-up; take-off and landing.</li> </ul>	<ul style="list-style-type: none"> <li>● Utilize video clips of performances of advanced skills available online for instructional and/or assessment purposes.</li> <li>● Discuss how to analyze the sequence of tasks in parts. Students will analyze self/peer “each part”, correct, practice and reassess. Example: Tennis serve, part progression – <ol style="list-style-type: none"> <li>1. Serving toss.</li> <li>2. Tossing and hitting, beginning with the racket in "back-scratch" position.</li> <li>3. Tossing and hitting, beginning with the racket held near the hip.</li> <li>4. Whole serving motion.</li> </ol> </li> <li>● Discuss observation strategies: <ul style="list-style-type: none"> <li>○ Observe from different angles (e.g., side, front and back). This gives a number of different perspectives. If the movement covers some distance or moves in different directions, observation should be from various points.</li> <li>○ View the movement more than once. First look at the whole movement then focus on the different parts of the movement.</li> <li>○ Look for the cause of ineffective movement and not the symptoms. Example – If a step back is taken after a landing on a back somersault, do not comment on the landing but instead comment on the reason for the poor landing due to not tucking tightly or opening out to soon.</li> </ul> </li> </ul>
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**Resources:**

SHAPE America National Standards and Grade-Level Outcomes; [http://sydney.edu.au/education\\_social\\_work/groupwork/docs/SelfPeerAssessment.pdf](http://sydney.edu.au/education_social_work/groupwork/docs/SelfPeerAssessment.pdf); <http://www.ascd.org/publications/educational-leadership/sept12/vol70/num01/Seven-Keys-to-Effective-Feedback.aspx> (ASCD article is geared towards teachers but provides good background explanation for feedback)



**VA SOL Standard:** 9.3 The student will evaluate current fitness behaviors and demonstrate achievement and maintenance of a health-enhancing level of personal fitness by designing, implementing, self-assessing and modifying a personal fitness program.

**ESSENTIAL UNDERSTANDING**

- Physical literacy includes the ability to plan, implement, evaluate and modify a personal, goal-driven fitness plan that enables students to achieve and maintain the level of fitness needed to meet their personal goals for various work-related, sport and leisure activities.

<b>VDOE Standard(s) Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.3 a)</b> Demonstrate program-planning skills by assessing and analyzing personal fitness levels, setting goals, devising strategies, making timelines for a personal physical fitness plan and evaluating the components and progress of the personal fitness plan.</p> <p><b>Suggested Learning Targets:</b></p> <p>I will evaluate my personal fitness levels and analyze the results to determine areas to improve/maintain and demonstrate it through a fitness data analysis summary.</p> <p>I can create specific, measurable, attainable, realistic and timely personal fitness goals based on fitness assessment data results and write them in a fitness log/journal.</p> <p>I can create a written fitness plan to reach my SMART</p>	<p><b>Assessment of Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>Written: Examining the individual plan elements as the plan is developed. Example of a design brief:               <ul style="list-style-type: none"> <li>Situation: What are you trying to develop?</li> <li>Problem: What are the concerns?</li> <li>Requirements: What individual requirements must be met to complete the task?</li> <li>Resources: What resources will you use?</li> <li>Evaluation: What is the criteria by which the task will be graded?</li> </ul> </li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>Personal Fitness Plan Elements to include:               <ul style="list-style-type: none"> <li>Baseline assessment.</li> <li>Analysis of baseline data.</li> <li>SMART goal statements to improve or maintain fitness levels for each component of fitness.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Review Health-Related Fitness Components. *(Refer to 9.1.f for additional information)               <ul style="list-style-type: none"> <li>Cardiorespiratory endurance: Is the ability of the cardiovascular system (heart, blood, blood vessels) and respiratory system (lungs, air passages) to deliver oxygen and other nutrients to the working muscles and to remove wastes. Tests that involve running (e.g., 20 m shuttle run test), cycling and swimming can be used to measure this fitness component. Activities vary in intensity level:                   <ul style="list-style-type: none"> <li>Light activities are physical activities that involve large muscle groups. While engaging in light activities, people begin to notice their breathing, but they can still talk fairly easily.</li> <li>Moderate activities are physical activities that cause breathing and heart rate to increase. People engaging in moderate activities can hear themselves breathe, but they can still talk.</li> <li>Vigorous activities are physical activities that cause breathing and heart rate to increase to a higher level, making it difficult to talk.</li> </ul> </li> <li>Muscular strength is the ability of a muscle or a group of muscles, to exert force for a brief period of time. Strength of different muscles can be measured by having a person perform weightlifting exercises and determining the maximum amount of weight the person can lift. A person's strength can be expressed as absolute strength (the actual weight lifted) or as relative strength (the weight lifted, divided by the person's body weight).</li> <li>Muscular endurance is the ability of a muscle or a group of muscles, to sustain repeated contractions or to continue applying force against a fixed object.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Students complete a self-assessment of health-related fitness and interpret fitness data comparing individual scores to established Virginia Wellness (Fitnessgram®) fitness standards and BMI calculations to the CDC protocols and recommendations.</li> <li>Create SMART goals for improvement of physical activities. <a href="http://www.unh.edu/hr/sites/unh.edu/hr/files/pdfs/SMART-Goals.pdf">http://www.unh.edu/hr/sites/unh.edu/hr/files/pdfs/SMART-Goals.pdf</a></li> <li>Additional resources may include pedometers, accelerometers, personal fitness tracking devices, heart rate, appropriate apps, BMI calculations, activity logs and fitness and activity planning.</li> <li>Class instruction/discussion on roadblocks/barriers to developing a personal fitness plan: <a href="http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/StayingMotivatedforFitness/Breaking-Down-Barriers-to-Fitness_UCM_462208_Article.jsp#.V6eGEf36upo">http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/StayingMotivatedforFitness/Breaking-Down-Barriers-to-Fitness_UCM_462208_Article.jsp#.V6eGEf36upo</a></li> </ul>

<p>goals that includes action steps and appropriate activities, demonstrates the principals of SOP and FITT, includes a timeline and addresses challenges.</p> <p>I can document implementation of an individualized fitness program in my (selected assessment product: i.e., fitness log, journal and portfolio).</p> <p>I can reassess and reflect on progress at midyear and end of year in my (selected assessment product: i.e., fitness log, journal and portfolio).</p>	<ul style="list-style-type: none"> <li>○ Action plan to meet goals with short- (quarterly) and long-term (school year) goals.</li> <li>○ Activity logs.</li> <li>○ Reassessment (for each short-term goal; ex. quarterly).</li> <li>○ Reflection.</li> <li>○ Modifications as needed (includes identifying roadblocks and strategies to address roadblocks).</li> <li>○ Final assessment and reflection of goal achievement.</li> </ul>	<p>Push-ups and curl-ups are often used to test muscular endurance. The person's endurance is expressed as the number of repetitions completed without stopping for a set period of time (often one minute).</p> <ul style="list-style-type: none"> <li>○ Flexibility is the ability to move joints through their full range of motion. The sit-and-reach test is a good measure of flexibility of the lower back and the backs of the upper legs (hamstrings). A person's flexibility is usually expressed in how far a joint can be moved or the degrees through which a joint can be moved.</li> <li>○ Body composition refers to the makeup of the body in terms of lean mass (muscle, bone, vital tissue and organs) and fat mass. Good body composition has strong bones, adequate skeletal muscle size, a strong heart and a low amount of fat mass. Regular physical activity and exercise will help decrease body fat and increase or maintain muscle mass, increase bone mass and improve heart function. Although body composition entails muscle, bone and fat, it is often expressed only as percentage of body fat. Many types of tools can be used to assess body composition, including skinfold calipers, bioelectrical impedance analyzers (found in many weigh scales), body mass index (BMI), underwater weighing and dual energy X-ray absorptiometry. Improving in these four health-related fitness areas will increase lean body mass (stronger bones and muscle) and decrease fat mass and therefore significantly affect body composition. Improvements will also reduce risk of disease and improve work capacity.</li> </ul>	<p>Example discussion questions: How do family values, beliefs and availability influence a comprehensive personal fitness plan outside of school and what are some possible solutions.</p> <ul style="list-style-type: none"> <li>● Participate independently in the implementation of a personal fitness plan inside of school.</li> </ul> <p>*Note: It is an inappropriate practice to grade students on fitness test results.</p>
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**Resources:**  
 SHAPE America National Standards and Grade-Level Outcomes; [http://www.thephysicaleducator.com/resources/infographics/fitness\\_components/](http://www.thephysicaleducator.com/resources/infographics/fitness_components/);  
<http://www.cdc.gov/physicalactivity/basics/adding-pa/index.htm>; <http://kidshealth.org/en/teens/exercise-log.html>  
<https://www.adultfitnessstest.org/testInstructions/aerobicFitness/index.php>; [https://www.acefitness.org/acefit/fitness\\_programs\\_core\\_workout.aspx?workoutid=17](https://www.acefitness.org/acefit/fitness_programs_core_workout.aspx?workoutid=17);  
<https://www.adultfitnessstest.org/testInstructions/muscularStrengthAndEndurance/interpretImprove.php>; <http://kidshealth.org/en/teens/easy-exercises.html>  
[http://www.heart.org/HEARTORG/Conditions/More/CardiacRehab/Develop-a-Physical-Activity-Plan-for-You\\_UCM\\_307380\\_Article.jsp#.V8Npu\\_36s5u](http://www.heart.org/HEARTORG/Conditions/More/CardiacRehab/Develop-a-Physical-Activity-Plan-for-You_UCM_307380_Article.jsp#.V8Npu_36s5u);  
[http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/StayingMotivatedforFitness/Identifying-Your-FitnessGoals\\_UCM\\_462202\\_Article.jsp#.V8NnnP36s5t](http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/StayingMotivatedforFitness/Identifying-Your-FitnessGoals_UCM_462202_Article.jsp#.V8NnnP36s5t); <https://www.betterhealth.vic.gov.au/health/healthyliving/physical-activity-overcoming-the-barriers>

**VA SOL Standard:** 9.3 The student will evaluate current fitness behaviors and demonstrate achievement and maintenance of a health-enhancing level of personal fitness by designing, implementing, self-assessing and modifying a personal fitness program.

**ESSENTIAL UNDERSTANDING**

- To improve fitness, the body must be overloaded in a safe and progressive manner.
- The risk of injury can be reduced by performing appropriate amounts of activity and setting appropriate personal goals.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.3 b)</b> Apply the FITT (frequency, intensity, time, type) principle and other principles of training such as overload, specificity and progression, in accordance with personal goals to the personal fitness plan.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can demonstrate the FITT and SOP principles for improvement of my personal fitness through my written personal fitness plan.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Review understanding of 9.2.d.</li> <li>• Students review personal fitness plan action steps for use of SOP and FITT principles.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Fitness plan action steps include explicit use of SOP and FITT principles to achieve personal fitness goals.</li> </ul>	<ul style="list-style-type: none"> <li>• Review principles of training such as specificity, overload and progression. *Additional information found in 9.1.d, 9.2.a and 9.2.d.</li> <li>• Review FITT principle.             <ul style="list-style-type: none"> <li>○ Frequency: How often; commonly measured in days per week. For each component of health-related fitness, a safe frequency is three to five times a week.</li> <li>○ Intensity: How hard; commonly measured in intensity levels. Intensity can be measured in different ways, depending on the connected health-related component. For example, monitoring heart rate is one way to gauge intensity during aerobic endurance activities.</li> <li>○ Time: How long; commonly measured in minutes/hours. Time varies depending on the health-related fitness component targeted. For example, flexibility or stretching may take 10-30 seconds for each stretch, while the minimum time for performing aerobic activity is 15 minutes of continuous activity.</li> <li>○ Type: What kind; measured in specific health-related component of fitness. For example, an individual wishing to increase arm strength must exercise the triceps and biceps, while an individual wishing to increase aerobic endurance needs to jog, run, swim or perform some other aerobically challenging activity.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Instruct in conjunction with or after 9.3.a. (may be an additional component of the personal fitness plan following instruction of concepts in 9.2.d.)</li> <li>• Give examples of the FITT principle to improve the different components of fitness. Example: Muscular strength and endurance             <ul style="list-style-type: none"> <li>○ Using the FITT principle to improve Muscular Endurance:                 <ul style="list-style-type: none"> <li>▪ Frequency: 3 to 5 days per week.</li> <li>▪ Intensity: Lighter weights; more repetitions (1-3 sets of 10-20 reps).</li> <li>▪ Time: 6 seconds per lift.</li> <li>▪ Type of activity: Free-weight, weight training, medicine ball, own body weight.</li> </ul> </li> <li>○ Using the FITT principle to improve Muscular Strength:                 <ul style="list-style-type: none"> <li>▪ Frequency: 3 to 4 days per week</li> <li>▪ Intensity: Heavier weights; less repetition (1-3 sets of 8-10 reps)</li> <li>▪ Time: 6 seconds per lift.</li> <li>▪ Type of activity: Free-weight, weight training, medicine ball, own body weight.</li> </ul> </li> </ul> </li> <li>• Give examples of SOP principles to exercise workouts for improvement of a component of fitness. Example: Cardiorespiratory endurance             <ul style="list-style-type: none"> <li>○ Overloading for cardiorespiratory endurance                 <ul style="list-style-type: none"> <li>▪ Frequency = minimum of 3 days/week</li> </ul> </li> </ul> </li> </ul>

			<ul style="list-style-type: none"> <li>▪ Intensity = exercising in target heart-rate zone</li> <li>▪ Time = minimum of 15 minutes rate</li> <li>○ Progression for cardiorespiratory endurance <ul style="list-style-type: none"> <li>▪ Begin at a frequency of 3 days/week and work up to no more than 6 days/week.</li> <li>▪ Begin at an intensity near target heart rate threshold and work up to 80% of target heart rate.</li> <li>▪ Begin at 15 minutes and work up to 60 minutes.</li> </ul> </li> <li>○ Specificity for cardiorespiratory endurance <ul style="list-style-type: none"> <li>▪ Perform aerobic (with oxygen) activities for at least fifteen minutes without developing an oxygen debt.</li> <li>▪ Aerobic activities include, but are not limited to brisk walking, jogging, bicycling and swimming.</li> </ul> </li> </ul>
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**Resources:**

SHAPE America National Standards and Grade-Level Outcomes; [http://www.teachpe.com/fitness/training\\_principles.php](http://www.teachpe.com/fitness/training_principles.php);  
<http://www.ode.state.or.us/teachlearn/subjects/pe/curriculum/fittprinciple.pdf>

**VA SOL Standard:** 9.3 The student will evaluate current fitness behaviors and demonstrate achievement and maintenance of a health-enhancing level of personal fitness by designing, implementing, self-assessing and modifying a personal fitness program.

**ESSENTIAL UNDERSTANDINGS**

- Exercise programs range in scope and effectiveness and are not appropriate for all people to meet all goals.
- Exercise programs need to be selected based on personal goals, availability of resources to implement, knowledge of safety concerns and knowledge of correct techniques.

<b>VDOE Standard(s) Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.3 c)</b> Explain the characteristics, including scientific principles and concepts, of safe and appropriate muscular-stretching, muscular-strengthening and cardiorespiratory exercise programs to improve the health-related components of fitness.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can describe the appropriate and inappropriate uses of (selected exercise program such as: static, ballistic, dynamic and Proprioceptive Neuromuscular Facilitation) stretching to improve flexibility and explain it to a peer.</p> <p>I can compare the appropriate and inappropriate uses of different types of strength/resistance training to improve muscular strength and explain it in a graphic organizer.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Vocabulary assessments.</li> <li>• Descriptions of each type of muscular-stretching, muscular-strengthening and cardiorespiratory exercise programs.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Fitness plan action steps include explicit and appropriate use of muscular-stretching, muscular-strengthening and cardiorespiratory exercise programs</li> </ul>	<ul style="list-style-type: none"> <li>• Muscular-stretching: Be sure to raise the body's internal temperature through light physical activity before engaging in stretching activities. <ul style="list-style-type: none"> <li>○ Active stretch– Person stretching applies the force of the stretch</li> <li>○ Passive– Resistance by a chair, towel, machine or a partner provides the force of the stretch carries some risk.</li> <li>○ Static– Slow and constant with end position held, caution is exercised with proper technique.</li> <li>○ Ballistic– Bouncing-type movement; not recommended for health-related fitness</li> <li>○ Dynamic– Flexibility during sport-specific movements, avoids bouncing, such as a track sprinter performing long walking strides for a warmup focus on hip extension.</li> <li>○ Reflex-assisted– such as plyometric: Higher injury risk, not recommended for health-related fitness.</li> <li>○ Proprioceptive Neuromuscular Facilitation (PNF) – Technique that combines passive and isometric stretching; a muscle group is passively stretched, then contracts isometrically against resistance while in the stretched position and then is passively stretched again through the resulting increased range of motion; use of a partner to provide resistance against the isometric contraction and then later to passively take the joint through its increased range of</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Instruct in conjunction with or after 9.3.b. (may be an additional component of the personal fitness plan following instruction of concepts in 9.2.d. and 9.3.b.)</li> <li>• Teach safety considerations in cardiorespiratory exercise programs: <ul style="list-style-type: none"> <li>○ Know how to calculate target heart-rate zone.</li> <li>○ Know how to monitor intensity (e.g., talk test, rate of perceived exertion, heart-rate monitors).</li> <li>○ When increasing the intensity (speed, incline and/or resistance) or duration of exercise, keep in mind the 10 percent rule (e.g., if a person is running continuously for 10 minutes per session in week 1, then in week 2 the maximum increase recommended would be to run continuously for 11 minutes per session).</li> <li>○ Include a variety of activities to avoid overuse injuries or to prevent boredom.</li> <li>○ Include a cardiorespiratory cool-down. To prevent post-exercise peril (e.g., dizziness, light-headedness, fainting), gradually reduce the heart rate, breathing rate and body temperature before moving on to resistance training or flexibility training. This could be accomplished by simply walking slowly for 5 to 10 minutes.</li> </ul> </li> <li>• Teach safety considerations in muscular strengthening exercise programs: <ul style="list-style-type: none"> <li>○ Include a general warm-up prior to training.</li> </ul> </li> </ul>

<p>I can explain the appropriate and inappropriate uses of long, slow distance training, pace/tempo training and interval training to improve anaerobic and aerobic capacity in my journal.</p>		<p>motion. May be done without a partner, such as using a towel; muscles need to be warmed up first.</p> <ul style="list-style-type: none"> <li>• Muscular-strengthening <ul style="list-style-type: none"> <li>○ Strength training or resistance training– Systematic program of exercises designed to increase an individual’s ability to resist or exert force.</li> <li>○ Free weights, weight machines, resistance bands, plyometric exercise, callisthenic exercises, Pilates, yoga, martial arts, circuit training (large muscles before small muscles, alternate push and pull, alternate upper body and lower body), pyramid training and negative training.</li> <li>○ Safety– Clothing, footwear, equipment, spotters, technique.</li> </ul> </li> <li>• Cardiorespiratory exercise <ul style="list-style-type: none"> <li>○ FITT principle; heart rate– <math>VO_2max</math>; RPE</li> <li>○ Recovery time between workouts should include sufficient rest, rehydration and restoring fuel sources.</li> <li>○ Long, slow distance training– About 80% of maximum heart rate (70% <math>VO_2max</math>), person is able to talk and exercise without respiratory distress.</li> <li>○ Pace/tempo training– Steady or threshold training for 20-30 minutes; intermittent pace/tempo training – intensity is same as steady threshold but shorter intervals of time with brief recovery periods.</li> <li>○ Interval training– Intensity close to <math>VO_2max</math>; workout intervals between 3 and 5 minutes; rest intervals at equal/equivalent time; 1:1; stressful and should be performed sparingly; benefits increased <math>VO_2max</math> and anaerobic metabolism.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Wear appropriate clothes and protective equipment. For example, gloves reduce the risk of blisters. Solid running shoes provide a stable base from which to exercise.</li> <li>○ Always secure weight plates with safety collars.</li> <li>○ Don’t hold the breath while lifting weights. In general, breathe out on the exertion or when tightening the muscle and breathe in when lowering the weight or returning to the start position.</li> <li>○ Never completely straighten a joint.</li> <li>○ Work big muscle groups before small ones.</li> <li>○ Perform multi-joint exercises before single-joint exercises.</li> <li>○ Train the core area last.</li> <li>○ Never work the same muscle or muscle group two days in a row.</li> <li>○ When in a situation where a “spotter” may be required, check with the physical education instructor or weight room supervisor regarding safety and proper technique.</li> <li>○ Always control the speed of the lifting and lowering. It is recommended that one repetition should take approximately 4 to 7 seconds to complete. Avoid jerky motion.</li> </ul> <ul style="list-style-type: none"> <li>• Teach safety considerations in muscular-stretching programs: <ul style="list-style-type: none"> <li>○ A stretch should feel like a gentle pull and should not be painful.</li> <li>○ Avoid bouncing.</li> <li>○ Work towards holding a stretch for 30 seconds.</li> <li>○ Remember to breathe normally.</li> <li>○ Be sure to stretch tight postural muscles (e.g., chest) as well as the muscle focused on in the workout.</li> </ul> </li> </ul>
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**Resources:**  
SHAPE America National Standards and Grade-Level Outcomes; Essentials of Strength Training and Conditioning (Human Kinetics);  
[http://web.mit.edu/tkd/stretch/stretching\\_4.html](http://web.mit.edu/tkd/stretch/stretching_4.html); <http://kidshealth.org/en/teens/strength-training.html>; [http://www.teachpe.com/strengthening/free\\_weights.php](http://www.teachpe.com/strengthening/free_weights.php);  
<http://www.teachpe.com/stretching/stretches.php>

**VA SOL Standard:** 9.3 The student will evaluate current fitness behaviors and demonstrate achievement and maintenance of a health-enhancing level of personal fitness by designing, implementing, self-assessing and modifying a personal fitness program.

**ESSENTIAL UNDERSTANDINGS**

- Heart rate is a useful indicator of the intensity of effort and body's physiological adaptation.
- Monitoring your heart rate will allow you to track the changes taking place in your cardiovascular system as you move towards aerobic fitness.
- Selection of a measurement method depends on the purpose of the evaluation, the nature of the study and the resources available.

<p><b>VDOE Standard(s)</b>  <b>Student Friendly Language</b>                      What will the student know and be able to do?</p>	<p><b>SUGGESTED / SAMPLE ASSESSMENTS</b></p>	<p><b>Terms (Vocabulary) and Content Information</b></p>	<p><b>SUGGESTED / SAMPLE ACTIVITIES</b></p>
<p><b>9.3 d)</b> Explain the relationship between heart rate, training zones and exercise intensity, to include measures (e.g., heart rate monitors, pedometers, accelerometers) and appropriate training zones to meet exercise and personal fitness goals.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can explain the impact of heart rate, training zones and exercise intensity on meeting personal exercise and fitness goals and write it in my fitness journal.</p> <p>I can conduct a self-assessment of a physical fitness activity using a (selected measures—pedometer, accelerometer and heart rate monitor) to track my exercise intensity and give my conclusions to a peer.</p> <p>I can self-monitor my heart rate during exercise and summarize my performance to my teacher.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Vocabulary assessment.</li> <li>• Practice use of selected measures – pedometer, accelerometer, heart rate monitor, other available technology such as fitness watches.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Calculation of target heart rate ranges for appropriate intensity levels.</li> <li>• Demonstration of measures and analysis of results of measures for heart rate, training zones and exercise intensity.</li> <li>• Fitness plan documents includes activity logs that detail results of measures used</li> </ul>	<ul style="list-style-type: none"> <li>• Heart rate is most frequently used for gauging exercise intensity due to the relationship between heart rate and oxygen consumption (VO<sub>2</sub>max is a measure of the body's ability to extract and utilize oxygen during exercise); see 9.2.e.</li> <li>• Training zones may be characterized by the level of intensity (using a RPE scale) or percentage of maximal heart rate range.</li> <li>• Rate of perceived exertion (RPE): Scale(s) selection such as:                         <ul style="list-style-type: none"> <li>○ 0-10 scale – With 0 (nothing at all) would be how you feel when sitting in a chair and 10 (very, very heavy) is how you feel at the end of a very difficult activity.</li> <li>○ <u>Borg Scale (CDC)</u> <ul style="list-style-type: none"> <li>6 No exertion at all</li> <li>7 Extremely light (7.5)</li> <li>8</li> <li>9 Very light</li> <li>10</li> <li>11 Light</li> <li>12</li> <li>13 Somewhat hard</li> <li>14</li> <li>15 Hard (heavy)</li> <li>16</li> <li>17 Very hard</li> <li>18</li> <li>19 Extremely hard</li> <li>20 Maximal exertion</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Monitor heart rates for comparison to workout intensity. Use percentage of maximal heart rate method (target heart rate range method)                         <ul style="list-style-type: none"> <li>○ APMHR = 220 – age</li> <li>○ Target heart rate (THR) = (APMHR X exercise intensity)                                  Ex: 20 year old wants to work at an intensity level of 70-85% of maximal heart rate; to find Target Heart Rate Range (THRR) find APMHR = 220 – 20 = 200 bpm                                 <ul style="list-style-type: none"> <li>▪ Low THRR = 200 X .70 = 140 bpm</li> <li>▪ High THRR = 200 X .85 = 170 bpm</li> </ul> </li> </ul> </li> <li>• Create activities that cause students to move through the different intensity levels and take target heart rates throughout.</li> <li>• Record Pedometer Steps In or Out of Class: Information...                         <ul style="list-style-type: none"> <li>○ 30 minutes/day of MVPA                                 <ul style="list-style-type: none"> <li>▪ 8,000 steps/day for 30 min. of MVPA for adults.</li> <li>▪ Step target for MVPA for all kids: 12,000/day</li> </ul> </li> </ul> </li> </ul>

<p>I can incorporate technology to enhance knowledge, improve performance and provide feedback for self-assessing and application for the development of my written personal fitness plan.</p>		<ul style="list-style-type: none"> <li>• <b>Intensity Levels (such as)</b> <ul style="list-style-type: none"> <li>○ Intensity Level 1 - Not moving (seated)</li> <li>○ Intensity Level 2 - Slow (walking)</li> <li>○ Intensity Level 3 - Medium (skipping, galloping)</li> <li>○ Intensity Level 4 - Fast (jogging/ running)</li> <li>○ Intensity Level 5 - Very fast (sprinting)</li> </ul> </li> <li>• <b>Measures</b>            Note: Teachers may want to connect with their school nurses, public health nurses or nurse training programs in their school or in their area to support instruction of blood pressure.           <ul style="list-style-type: none"> <li>○ Heart rate monitors– wireless chest strap that sends continuous data to a monitor (watch) worn on the wrist; pulse monitors may be worn on the wrist that require you to put your finger on a certain spot to take your pulse; may have indicators worn on shoes or have GPS capability to map routes or distance; fitness trackers provide multiple target zones, calorie counters, speed/distance,</li> <li>○ Pedometers– tracks steps taken by indicating each time the wearer’s hips move or some models can track foot movement</li> <li>○ 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</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ 150 minutes/week of MVPA translates to 7,000 steps/day (or 49,000 steps/week).</li> <li>○ Accumulating 8,000 steps/day is a good proxy for 30 minutes of daily MVPA, while accumulating 7,000 steps/day is consistent with obtaining 150 minutes of weekly MVPA. (MVPA: moderate to vigorous physical activity)</li> <li>• Using the RPE scale on a regular basis to recognize the body's signs of exertion and to modify normal workout intensity.           <ul style="list-style-type: none"> <li>○ Once you feel that you are exercising "somewhat hard," you can increase or decrease your efforts depending on how you feel and the intensity you require.</li> </ul> </li> </ul>
<p><b>Resources:</b>            Resources: SHAPE America National Standards and Grade-Level Outcomes; <a href="http://www.doe.virginia.gov/instruction/physed/index.shtml">http://www.doe.virginia.gov/instruction/physed/index.shtml</a>;  <a href="http://www.humankinetics.com/excerpts/excerpts/using-technology-to-promote-physical-activity">http://www.humankinetics.com/excerpts/excerpts/using-technology-to-promote-physical-activity</a>;  <a href="http://www.livestrong.com/article/95271-normal-pulse-rate-teenager/#ixzz1YV5chxVS">http://www.livestrong.com/article/95271-normal-pulse-rate-teenager/#ixzz1YV5chxVS</a>; <a href="http://www.cdc.gov/physicalactivity/basics/measuring/index.html">http://www.cdc.gov/physicalactivity/basics/measuring/index.html</a></p>			

**VA SOL Standard:** 9.3 The student will evaluate current fitness behaviors and demonstrate achievement and maintenance of a health-enhancing level of personal fitness by designing, implementing, self-assessing and modifying a personal fitness program.

**ESSENTIAL UNDERSTANDINGS**

- Resistance training is any exercise that causes the muscles to contract against an external resistance with the expectation of increases in strength, tone, mass and/or endurance.

<b>VDOE Standard(s) Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.3 e)</b> Demonstrate appropriate techniques for resistance-training activities, machines and/or free weights.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can perform safe techniques for (selected resistance-training activity) and demonstrate it to my teacher.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Review knowledge of 9.3.c.</li> <li>• Identify examples/types of resistance activities.</li> <li>• Identify examples/types of strength and stretching activities.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Demonstration of appropriate techniques for resistance-training activities.</li> <li>• Written or physical demonstration of types of strength and stretching exercises.</li> </ul>	<ul style="list-style-type: none"> <li>• Isometric, concentric, eccentric - see 9.2.b.</li> <li>• Static, proprioceptive neuromuscular facilitation, dynamic – see 9.3.c.</li> <li>• Appropriate techniques will be determined by activities selected.</li> <li>• Muscular endurance vs. muscular strength.             <ul style="list-style-type: none"> <li>○ Sets and Reps: Circuit training stations. Weight-training circuits use large muscle groups first and require 10 to 20 repetitions per station vs. strength-training programs that require up to five sets of one to eight repetitions.</li> <li>○ Rest Intervals: Circuit training targets muscular endurance by employing short rest periods, of 20 to 30 seconds, between stations or sets vs. strength-training that requires maximal effort lifting during each set. Therefore, strength-training programs use rest periods of two to five minutes between sets. Longer rest periods enable full muscular recovery while shorter periods do not.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Build on 9.3.c instruction.</li> <li>• Appropriate techniques for resistance-training activities— activities, whether using resistance bands, free weights, apps or media (videos) should match student interest, fitness level, activity level, experience and should provide student choice; caution should be exercised when implementing any new techniques. Example: <a href="http://greatist.com/fitness/50-bodyweight-exercises-you-can-do-anywhere">http://greatist.com/fitness/50-bodyweight-exercises-you-can-do-anywhere</a></li> <li>• Students may investigate available online tools/apps designed for personal fitness development; any media and apps used with students should be reviewed for safe and appropriate activities for all students.</li> </ul>
<p><b>Resources:</b>  <a href="http://www.teachpe.com/strengthening/body_weight.php">http://www.teachpe.com/strengthening/body_weight.php</a>; <a href="http://kidshealth.org/en/teens/strength-training.html">http://kidshealth.org/en/teens/strength-training.html</a>;  <a href="https://www.acsm.org/docs/brochures/resistance-training.pdf">https://www.acsm.org/docs/brochures/resistance-training.pdf</a></p>			

**VA SOL Standard:** 9.3 The student will evaluate current fitness behaviors and demonstrate achievement and maintenance of a health-enhancing level of personal fitness by designing, implementing, self-assessing and modifying a personal fitness program.

**ESSENTIAL UNDERSTANDINGS**

- Heart rate is a useful indicator of the intensity of effort and body's physiological adaptation.
- Monitoring your heart rate will allow you to track the changes taking place in your cardiovascular system as you move towards aerobic fitness.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.3 f)</b> Calculate resting heart rate, target heart rate and blood pressure.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can take/calculate my resting heart rate and target heart rate and record it in my fitness journal.</p> <p>I can explain blood pressure results for myself or others through an exit ticket.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Heart rate calculations (resting, target heart rate ranges).</li> <li>• Calculation of target heart rate ranges for appropriate intensity levels.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Explain the purpose of blood pressure measures and what the numbers indicate.</li> </ul>	<ul style="list-style-type: none"> <li>• Blood pressure: Measure of the force of blood pushing against blood vessel walls; high blood pressure indicates that the heart is working harder to get blood out to the body; normal is less than 120 over 80 (120/80); measured with a blood pressure cuff (sphygmomanometer) – rubber cuff and a gauge - works by inflating a cuff around the upper arm to temporarily stop the flow of blood in an artery, as air is slowly released from the cuff, the device records the pressure at which blood begins to flow again. Blood pressure is recorded as two measurements:             <ul style="list-style-type: none"> <li>○ The first number is the systolic pressure. Systolic pressure represents the peak blood pressure that occurs when the heart contracts.</li> <li>○ The second number is the diastolic pressure. Diastolic pressure represents the lowest blood pressure that occurs when the heart relaxes between beats.</li> </ul> </li> <li>• Resting heart rate: Normally ranges from 60-100 beats/min.</li> <li>• Target heart rates help to determine appropriate intensity levels for exercise. By keeping the target heart rate in check a person is able to avoid under or over training and able to avoid overexertion. Exercise programs may be characterized by the level of intensity or percentage of maximal heart rate range.</li> </ul>	<ul style="list-style-type: none"> <li>• Resting heart rate: Take resting pulse by placing the tips of the index and middle fingers on their opposite wrist. Count the number of heartbeats in 60 seconds (or count for six seconds and multiply the number by 10).</li> <li>• Record target heart rates while resting and participating in different activities.</li> <li>• Connect with school nurses, EMTs, public health nurses, or nurse training programs in school or in the area to support instruction of blood pressure or perform individual student blood pressures.</li> </ul>

**Resources:**

SHAPE America National Standards and Grade-Level Outcomes;

[http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/AboutHighBloodPressure/Blood-Pressure-vs-Heart-Rate\\_UCM\\_301804\\_Article.jsp#.V6d-B\\_36upo](http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/AboutHighBloodPressure/Blood-Pressure-vs-Heart-Rate_UCM_301804_Article.jsp#.V6d-B_36upo);

[http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/WhyBloodPressureMatters/Why-Blood-Pressure-Matters\\_UCM\\_002051\\_Article.jsp#.V6d-QP36upo](http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/WhyBloodPressureMatters/Why-Blood-Pressure-Matters_UCM_002051_Article.jsp#.V6d-QP36upo);

[http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/AboutHighBloodPressure/Understanding-Blood-Pressure%20Readings\\_UCM\\_301764\\_Article.jsp#.V8Ycqf36s5t](http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/AboutHighBloodPressure/Understanding-Blood-Pressure%20Readings_UCM_301764_Article.jsp#.V8Ycqf36s5t);

[http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/PreventionTreatmentofHighBloodPressure/Prevention-Treatment-of-High-Blood-Pressure\\_UCM\\_002054\\_Article.jsp#.V6d-wf36upo](http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/PreventionTreatmentofHighBloodPressure/Prevention-Treatment-of-High-Blood-Pressure_UCM_002054_Article.jsp#.V6d-wf36upo)

[http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/AboutHighBloodPressure/Understanding-Blood-Pressure-Readings\\_UCM\\_301764\\_Article.jsp#.V9W4a\\_36s5s](http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/AboutHighBloodPressure/Understanding-Blood-Pressure-Readings_UCM_301764_Article.jsp#.V9W4a_36s5s)

**VA SOL Standard:** 9.3 The student will evaluate current fitness behaviors and demonstrate achievement and maintenance of a health-enhancing level of personal fitness by designing, implementing, self-assessing and modifying a personal fitness program.

**ESSENTIAL UNDERSTANDINGS**

- Exercise programs range in scope and effectiveness and are not appropriate for all people to meet all goals.
- Exercise programs need to be selected based on personal goals, availability of resources to implement, knowledge of safety concerns and knowledge of correct techniques.

<b>VDOE Standard(s) Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.3 g)</b> Identify types of strength exercises (isometric, concentric, eccentric) and stretching exercises (static, proprioceptive neuromuscular facilitation, dynamic) for personal fitness development (e.g., strength, endurance, range of motion).</p> <p><b>Suggested Learning Targets:</b></p> <p>I can provide examples of strength and stretching exercises and tell how they can improve/maintain my fitness to a peer.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Review knowledge of 9.3.c.</li> <li>• Oral: <ul style="list-style-type: none"> <li>○ Identify examples/types of resistance activities.</li> <li>○ Identify examples/types of strength and stretching activities.</li> </ul> </li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Teacher observation: Demonstration of appropriate techniques for resistance-training activities.</li> <li>• Written or physical demonstration of types of strength and stretching exercises.</li> </ul>	<ul style="list-style-type: none"> <li>• Isometric, concentric, eccentric - see 9.2.b.</li> <li>• Static, proprioceptive neuromuscular facilitation, dynamic – see 9.3.c.</li> <li>• Appropriate techniques will be determined by activities selected.</li> </ul>	<ul style="list-style-type: none"> <li>• Build on 9.3.c. instruction.</li> <li>• Appropriate techniques for resistance-training activities. Activities, whether using resistance bands, free weights, apps or media (videos) should match student interest, fitness level, activity level, experience and should provide student choice; caution should be exercised when implementing any new techniques.</li> <li>• Students may investigate available online tools / apps designed for personal fitness development; any media and apps used with students should be reviewed for safe and appropriate activities for all students.</li> <li>• Display strength exercises Example: <ul style="list-style-type: none"> <li>○ <a href="http://www.sparkpe.org/wp-content/uploads/basic-training-chest-card_hs.pdf">http://www.sparkpe.org/wp-content/uploads/basic-training-chest-card_hs.pdf</a></li> </ul> </li> </ul>

**Resources:**

SHAPE America National Standards and Grade-Level Outcomes;

Reliable Internet resources such as recognized associations (NASM), medically-based or .gov sites

[http://www.sparkpe.org/wp-content/uploads/basic-training-chest-card\\_hs.pdf](http://www.sparkpe.org/wp-content/uploads/basic-training-chest-card_hs.pdf); <http://kidshealth.org/en/teens/strength-training-vd.html?WT.ac=ctg#catdieting>;

<http://greatist.com/fitness/50-bodyweight-exercises-you-can-do-anywhere>; <http://www.fitnesshealth101.com/fitness/weight-training/strength-training>;

<https://quizlet.com/57485876/2-weight-training-flash-cards/>

**VA SOL Standard:** 9.3 The student will evaluate current fitness behaviors and demonstrate achievement and maintenance of a health-enhancing level of personal fitness by designing, implementing, self-assessing and modifying a personal fitness program.

**ESSENTIAL UNDERSTANDING**

- Exercise programs range in scope and effectiveness and are not appropriate for all people to meet all goals.
- Exercise is physical activity that is planned, structured, and repetitive for the purpose of conditioning any part of the body.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.3 h)</b> Define and describe terms and activities associated with fitness, to include set, repetition, isometric, isotonic, isokinetic, core, upper body and lower body exercises.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can define and provide examples for (selected term: set, repetition, isometric, isotonic, isokinetic, core, upper body and lower body exercises) and tell it to a peer.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Assess student knowledge of vocabulary - set, repetition, isometric, isotonic, isokinetic, core, upper body exercises and lower body exercises.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Define and describe terms.</li> <li>• Provide/identify examples of each term.</li> </ul>	<ul style="list-style-type: none"> <li>• Set: A group of consecutive reps for any exercise.</li> <li>• Repetition (rep): One completion of an activity or exercise.</li> <li>• Isometric: Muscle contraction against resistance, without appreciable shortening or change in length of muscle fibers and with marked increase in muscle tone; strength gains only occur at the joints used.</li> <li>• Isotonic: Muscular contraction in the absence of significant resistance, with marked shortening of muscle fibers and without great increase in muscle tone.</li> <li>• Isokinetic: Exercises that use equipment to provide resistance to movement at a given speed; movements with constant external resistance.</li> <li>• Core: Term refers to the muscles that are the central part of the body; muscles of the upper and lower torso, around the spine and pelvic muscles (back, side, pelvic and buttock muscles); include rectus abdominis, transversus abdominis, obliques, trapezius, latissimus dorsi, spinal erector, gluteus maximus, pectoralis major and deltoid; provides stability, able to flex, side bend and rotate the trunk; protect abdominal organs.</li> <li>• Upper body exercises would train the following muscle groups to some degree:</li> </ul>	<ul style="list-style-type: none"> <li>• Terms and examples should be provided in a variety of settings.</li> <li>• Display examples of upper and lower body exercises Example: <a href="https://wellness.ucr.edu/Stretches%20for%20Lower%20and%20Upper%20Body.pdf">https://wellness.ucr.edu/Stretches%20for%20Lower%20and%20Upper%20Body.pdf</a></li> </ul>

		<ul style="list-style-type: none"><li>○ Chest</li><li>○ Back</li><li>○ Shoulders</li><li>○ Biceps</li><li>○ Triceps</li></ul> <ul style="list-style-type: none"><li>● Lower body exercises would train the following muscle groups to some degree:<ul style="list-style-type: none"><li>○ Quads</li><li>○ Hamstrings</li><li>○ Calves</li><li>○ Lower Back</li><li>○ Abs</li></ul></li></ul>	
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**Resources:**  
SHAPE America National Standards and Grade-Level Outcomes;  
<http://www.health.harvard.edu/blog/build-your-core-muscles-for-a-healthier-more-active-future-201212285698>;  
<http://www2.gsu.edu/~wwwfit/lowerbod.html>; <https://www.nscs.com/Education/Articles/The-Often-Forgotten-Exercises-Isometric-Training/>

**VA SOL Standard:** 9.4 The student will explain and demonstrate the skills needed to be safe, responsible and respectful in all physical activity settings.

**ESSENTIAL UNDERSTANDINGS**

- Social development includes respecting the rights and feelings of others and being sensitive and responsive to the well-being of others.
- Learning and practicing social development skills in an educational environment with a goal of putting these skills and actions into practice in and outside of physical education classes.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.4 a)</b> Identify and demonstrate proper etiquette, respect for others, integrity and teamwork while engaging in a variety of activities.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can demonstrate appropriate etiquette in activity settings and give examples to a peer.</p> <p>I can show how to accept decisions of activity officials, accept the outcome of the activity and show appreciation toward participants when participating in (selected activity) and demonstrate it through a checklist.</p> <p><b>9.4 b)</b> Explain the impact of sports and activities in developing respect for the unique characteristics, differences and abilities of peers.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can explain how unique abilities of others influence</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Teacher observation: Demonstrates knowledge of etiquette while engaging in an activity.</li> <li>• Research/investigate the role of sports/activities in promoting inclusion (people with different abilities, unique characteristics).</li> <li>• Self/Peer Checklist: Example –            ___ Working with the team to apply knowledge about a game/activity/dance to outsmart opponents by understanding their moves or showing comprehension of dance elements.            ___ Showing commitment to the game/activity/dance.            ___ Caring for classmates by showing kind treatment during game/activity/dance.            ___ Support and encourage classmates instead of using put-downs during game/activity/dance.            ___ Showing control and standing tall when faced with defeat in</li> </ul>	<ul style="list-style-type: none"> <li>• Etiquette – Proper acceptable actions, behavior or conduct within an activity. Elements:  <ul style="list-style-type: none"> <li>○ Be kind</li> <li>○ Be courteous</li> <li>○ Be respectful</li> </ul> </li> <li>• Respecting the rights and feelings of others:  <ul style="list-style-type: none"> <li>○ By maintaining self-control.</li> <li>○ By respecting everyone’s right to be included.</li> <li>○ By respecting everyone’s right to a peaceful conflict resolution.</li> </ul> </li> <li>• Participation and putting forth effort:  <ul style="list-style-type: none"> <li>○ By exploring effort.</li> <li>○ By trying new things.</li> <li>○ By developing a personal definition of success.</li> </ul> </li> <li>• Being sensitive and responsive to the well-being of others.  <ul style="list-style-type: none"> <li>○ By developing prerequisite interpersonal skills.</li> <li>○ By becoming sensitive and compassionate to others.</li> <li>○ By helping others without the need for rewards.</li> </ul> </li> <li>• Measures of sportsmanship:  <ul style="list-style-type: none"> <li>○ Be polite; don’t show off; congratulate and thank opponents; learn the rules; don’t</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Use a variety of activities and opportunities for students to experience examples and non-examples for proper etiquette, respect for others, integrity and teamwork.</li> <li>• Provide students an opportunity to investigate the impact of sports on inclusion and respect for differences.</li> <li>• Students apply rules and etiquette by acting as an official for activities.</li> </ul>

<p>the experience of participating in and/or the success of (selected activity) through an exit ticket.</p> <p>I can show how to support others by respecting abilities and strengths of others and demonstrate it through encouraging feedback to peers for teacher observation.</p>	<p>game/activity or inability to master a dance routine.</p> <p>_____ Owning up to mistakes/fouls that are made during game/activity/dance.</p> <p>_____ Showing humility by refraining from boasting when winning a game/activity or completing a dance routine.</p> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Written: Proper etiquette, respect for others, integrity and teamwork.</li> <li>• Written: Impact of sports and activities in developing respect for the unique characteristics, differences and abilities of peers.</li> <li>• Performance: Demonstration of proper etiquette, respect for others, integrity and teamwork.</li> </ul>	<p>argue with the official; don't make up excuses or blame a teammate; be willing to sit out; play fair; don't cheat; cheer for teammates; and acknowledge the good play of opponents.</p>	
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**Resources:**  
 SHAPE America National Standards and Grade-Level Outcomes; [http://www.teachpe.com/sports\\_psychology/attitudes.php](http://www.teachpe.com/sports_psychology/attitudes.php);  
<http://www.doe.virginia.gov/instruction/physed/index.shtml>; <http://lessonplanspage.com/peoempowereddecisionmaking612.htm/>;

**VA SOL:** 9.4 The student will explain and demonstrate the skills needed to be safe, responsible and respectful in all physical activity settings.

**ESSENTIAL UNDERSTANDINGS**

- Conflict is normal and inevitable, occurring in a variety of settings throughout all life experiences.
- There are healthy and unhealthy ways to resolve conflict.
- When handled in a respectful and positive way, conflict provides an opportunity for growth, ultimately strengthening the bond between people.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.4 c)</b> Apply conflict-resolution skills in physical activity settings.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can show healthy and effective ways to avoid and address conflict with peers and demonstrate it to my teacher.</p> <p>I can create guidelines to resolve conflict during (selected activity) and tell them to a peer.</p> <p>I can perform cooperation skills in (selected activity) and demonstrate it through a self-reflection summary paragraph.</p> <p>I can demonstrate positive strategies to resolve problems and conflict when faced with a group challenge and demonstrate it through a peer assessment.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Written: Knowledge of conflict resolution skills.</li> <li>• Peer Assessment: Example – Give feedback to a peer on their ability to avoid or address conflict using a teacher-created checklist or rubric.</li> <li>• Teacher observation</li> <li>• Written reflection: Example –           <ul style="list-style-type: none"> <li>○ During an activity/game, have you ever experienced an incident that made you angry?</li> <li>○ Describe what happened in the incident. When/where did it happen?</li> <li>○ What were your thoughts and feelings at the time?</li> <li>○ Describe your actions and how you handled the situation.</li> <li>○ What was the result?</li> <li>○ Now that you have had time to think about it, how would you act now in a similar situation?</li> <li>○ What communication skills and strategies would you have applied to this situation?</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Conflict resolution skills:           <ul style="list-style-type: none"> <li>○ Discuss problem without blame.</li> <li>○ Active listening.</li> <li>○ Identify and clarify issues and needs.</li> <li>○ Brainstorm solutions.</li> <li>○ Choose and apply solution.</li> <li>○ Evaluate solution.</li> </ul> </li> <li>• Constructive ways to address conflict:           <ul style="list-style-type: none"> <li>○ Listen to all opinions before making a judgment.</li> <li>○ Talk it out.</li> <li>○ Have face-to-face conversations with a mediator/teacher present.</li> <li>○ Seek understanding.</li> </ul> </li> <li>• Destructive ways to address conflict:           <ul style="list-style-type: none"> <li>○ Criticize people for their opinions.</li> <li>○ Blame others.</li> <li>○ Say or do hurtful things.</li> </ul> </li> <li>• Cooperative is described as:           <ul style="list-style-type: none"> <li>○ following rules</li> <li>○ encouraging others</li> <li>○ complimenting others</li> <li>○ controlling temper</li> <li>○ wanting everyone to play well and succeed</li> <li>○ working together toward a common goal</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Student creation of a behavior self-checklist for addressing personal conflict when participating in selected physical activities.</li> <li>• Instruction should include role plays to practice conflict resolution skills. Example: Present a case scenario that exemplifies a conflict between two people in a physical activity setting. Clearly identify the opposing opinions. Divide the class into two equal groups, each group representing one side of the conflict exemplified in the case scenario. Each group discusses the issue from its assigned perspective, using the following questions as a guide:           <ul style="list-style-type: none"> <li>○ How does your group see the conflict?</li> <li>○ What is the source of the conflict?</li> <li>○ What would the group be willing to do to resolve the conflict?</li> <li>○ What would the group hope to achieve from a resolution?</li> </ul> </li> <li>• Student creation of guidelines for resolving conflicts in activity settings that may include:           <ul style="list-style-type: none"> <li>○ Positive strategies such as offering suggestions/assistance, leading/following others</li> <li>○ Providing possible solutions when faced with a group challenge</li> <li>○ Helping and encouraging others, avoiding negative talk and providing support to classmates</li> </ul> </li> </ul>

	<p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Written: application of conflict resolution skills in a variety of physical activity settings (scenario-based assessment).</li> <li>• Performance: demonstration of use of healthy and effective conflict resolution skills.</li> </ul>	<ul style="list-style-type: none"> <li>○ helping classmates</li> <li>○ playing under control</li> <li>○ sharing</li> <li>○ showing concern for classmates' feelings</li> </ul>	
<p><b>Resources:</b>  SHAPE America National Standards and Grade-Level Outcomes; <a href="http://classroom.kidshealth.org/classroom/6to8/personal/growing/conflict_resolution.pdf">http://classroom.kidshealth.org/classroom/6to8/personal/growing/conflict_resolution.pdf</a>;  <a href="http://classroom.kidshealth.org/classroom/6to8/personal/growing/getting_along.pdf">http://classroom.kidshealth.org/classroom/6to8/personal/growing/getting_along.pdf</a>;  <a href="http://www.pecentral.org/lessonideas/ViewLesson.asp?ID=859#.V7H-Ybf6vcs">http://www.pecentral.org/lessonideas/ViewLesson.asp?ID=859#.V7H-Ybf6vcs</a>  <a href="http://ctb.ku.edu/en/table-of-contents/implement/provide-information-enhance-skills/conflict-resolution/tools">http://ctb.ku.edu/en/table-of-contents/implement/provide-information-enhance-skills/conflict-resolution/tools</a></p>			

**VA SOL Standard:** 9.4 The student will explain and demonstrate the skills needed to be safe, responsible and respectful in all physical activity settings.

**ESSENTIAL UNDERSTANDINGS**

- Working with others and encouraging teamwork will build confidence and support within a group.
- Positive relationships play a crucial role in well-being, thus opportunities for social interaction through physical activity in the community could vastly improve the well-being of individuals as well as the community as a whole.

<b>VDOE Standard(s) Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.4 d)</b> Identify an opportunity for social support in a self-selected physical activity.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can identify opportunities for social interaction in the community through (specific activities (i.e., hiking, biking, walking or rock climbing.) and express the benefits to a peer.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Student knowledge of the emotional and social health (mental health) benefits of physical activity.</li> <li>• Investigate opportunities for physical activities appropriate to your area that encourage social interaction. Examples: Skiing, hiking, biking, walking tracks or rock climbing.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Student selects two physical activities and compares the social and emotional benefits of participation in the activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Social and emotional benefits of participation in a variety of physical activities:             <ul style="list-style-type: none"> <li>○ Improves mental health and mood.</li> <li>○ Reduces the risk of depression and anxiety.</li> <li>○ Develops higher self-esteem and body image.</li> <li>○ Helps develop basic motor skills needed for day-to-day life.</li> <li>○ Effective in promoting mutual understanding and empathy.</li> <li>○ Builds character– social skills like teamwork, cooperation and leadership.</li> <li>○ Ability to handle winning and losing while being a good sport.</li> <li>○ Develop resiliency.</li> <li>○ Helps develop discipline.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Emphasize the role of physical activity as a means for group membership and positive social interaction and the importance of this type of interaction throughout history and in different cultures.</li> <li>• Make connections between an activity and the emotional benefits and social interaction. Example – It is found that group-based walking substantially increased social capital that includes sense of connectedness, collective efficacy, social engagement and acceptance of other groups.</li> </ul>

**Resources:**

SHAPE America National Standards and Grade-Level Outcomes

<http://www.thecommunityguide.org/pa/behavioral-social/community.html>; <http://ijbnpa.biomedcentral.com/articles/10.1186/1479-5868-4-54>

**VA SOL Standard:** 9.4 The student will explain and demonstrate the skills needed to be safe, responsible and respectful in all physical activity settings.

**ESSENTIAL UNDERSTANDINGS**

- Effective communication includes what is said, how it is said and how it is interpreted by the receiver of the message (what is meant is what is understood).
- Effective communication is important for personal, work/career, life and relationship success.

<p><b>VDOE Standard(s)</b>  <b>Student Friendly Language</b>                      What will the student know and be able to do?</p>	<p><b>SUGGESTED / SAMPLE ASSESSMENTS</b></p>	<p><b>Terms (Vocabulary) and Content Information</b></p>	<p><b>SUGGESTED / SAMPLE ACTIVITIES</b></p>
<p><b>9.4 e)</b> Apply communication skills and strategies that promote positive team/group dynamics.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can use effective communication skills for (selected activity) and demonstrate it to my teacher.</p> <p>I can use appropriate strategies that promote positive team/group dynamics and describe them to a peer.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Teacher observation: What to look for (measure/assess) during activity:                             <ul style="list-style-type: none"> <li>○ Are students accepting of all partners?</li> <li>○ Are students hustling to find partners?</li> <li>○ Are they mixing themselves up?</li> </ul> </li> <li>• Written: Describe verbal and nonverbal communication.</li> <li>• Oral:                             <ul style="list-style-type: none"> <li>○ Describe the verbal and nonverbal communications that occur in the selected activity.</li> <li>○ List strategies of how to include others when creating groups for physical activities and explain how these strategies improve time wasted and ease confusion.</li> </ul> </li> <li>• Self-reflection:                             <ul style="list-style-type: none"> <li>○ If a classmate says or does something I agree with, I ...</li> <li>○ When I want to make a point to the group, I...</li> <li>○ If a group member ignores my suggestions, I...</li> <li>○ If a group member says or does something I disagree with, I...</li> <li>○ If I don't understand the group leaders' ideas, I...</li> </ul> </li> </ul> <p><b>Assessment of Learning</b></p>	<ul style="list-style-type: none"> <li>• Collaborative Skills include:                             <ul style="list-style-type: none"> <li>○ The abilities to contribute to group activities and discussions.</li> <li>○ Consider the ideas and perspectives of others.</li> <li>○ Include others in the collaborative process.</li> <li>○ Stay focused on the task.</li> <li>○ Provide and receive feedback constructively.</li> </ul> </li> <li>• Communication strategies may include:                             <ul style="list-style-type: none"> <li>○ Verbal communication– sharing of information / relay a message between two or more people that uses sounds, signs and/or language; either oral or written; spoken word; either face-to-face or electronically.</li> <li>○ Nonverbal communication– sending and receiving wordless messages; body movements/body language such as facial expressions, body posture, gestures, eye contact, way, tone of voice, touch.</li> <li>○ Visual communication– visual aids such as signs, graphics, drawings, design, color, graphs, charts.</li> <li>○ 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.</li> </ul> </li> <li>• Strategy guidelines for including others:</li> </ul>	<ul style="list-style-type: none"> <li>• Any outdoor pursuit activities, fitness activities, dance and rhythmic activities, aquatics, selected individual performance activities and net/wall and target games activities that utilize communication strategies.                             <ul style="list-style-type: none"> <li>○ Effective listening skills: Staying quiet while someone is speaking.</li> <li>○ Effective speaking skills: Changing language and tone to make the message clearer and/or more appealing to the listener.</li> <li>○ Effective non-verbal skills that enhance effective communication: Using appropriate body language such as smiling or an affirmative nod of the head.</li> </ul> </li> <li>• Teach characteristics of good communication comments during team/group physical activities:                             <ul style="list-style-type: none"> <li>○ given with the goal of improvement</li> <li>○ timely</li> <li>○ honest</li> <li>○ respectful</li> <li>○ clear</li> <li>○ issue-specific</li> <li>○ objective</li> </ul> </li> </ul>

	<p><b>(Summative)</b></p> <ul style="list-style-type: none"> <li>• Written: Evaluation of communication strategies appropriate for selected activity.</li> <li>• Performance assessment</li> </ul> <p style="text-align: center;">Sample Rubric</p> <p>4 (<i>Beyond what was taught</i>) Demonstrates ability to adapt and adjust communication strategies based on the response of others in dynamic and unpredictable situations.</p> <p>3 (<i>What was explicitly taught</i>) Demonstrates appropriate and proper use of verbal and nonverbal communication skills appropriate to selected activity in dynamic situations.</p> <p>2 (<i>Identify basic elements</i>) Demonstrates appropriate and proper use of communication in isolation.</p> <p>1 (<i>With help/prompts/cues</i>) With teacher cues, student can demonstrate communication skills</p>	<ul style="list-style-type: none"> <li>○ Positive strategies such as offering suggestions/assistance, leading/following others.</li> <li>○ Providing possible solutions when faced with a group challenge.</li> <li>○ Helping and encouraging others, avoiding negative talk, and providing support to classmates.</li> </ul>	<ul style="list-style-type: none"> <li>○ supportive</li> <li>○ motivating</li> <li>○ action-oriented</li> <li>○ solution-oriented</li> </ul>
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**Resources:**  
SHAPE America National Standards and Grade-Level Outcomes; <http://kidshealth.org/en/teens/tips-disagree.html>

**VA SOL Standard:** 9.4 The student will explain and demonstrate the skills needed to be safe, responsible and respectful in all physical activity settings.

**ESSENTIAL UNDERSTANDINGS**

- Cooperative activities are problem-solving tasks designed to help group members develop their capacity to work effectively together.
- Group dynamics describes the way members of a group interact with each other.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.4 f)</b> Apply problem-solving and critical-thinking skills in physical activity settings, both as an individual and in groups.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can work cooperatively with a group to achieve the goals of the group by using problem-solving and critical-thinking skills and give examples of how I demonstrated that in an exit ticket.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Written: assess student knowledge of problem solving skill set.</li> <li>• Role play opportunities to practice problem solving and critical thinking.</li> <li>• Teacher observation of positive interdependence in which students all need to do their assigned specific roles and duties in order for a task to be completed.</li> <li>• Oral: Partner discussion on how a lack of unity affects problem solving within a group.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Written: scenario-based assessment to apply problem solving.</li> <li>• Performance: demonstrate problem solving strategies with a group to achieve a goal or goals</li> </ul>	<ul style="list-style-type: none"> <li>• Problem solving skill set:             <ul style="list-style-type: none"> <li>○ Identify the problem</li> <li>○ Analyze the problem</li> <li>○ Generate potential solutions</li> <li>○ Select and plan the solution</li> <li>○ Implement the solution</li> <li>○ Evaluate the solution</li> </ul> </li> <li>• Positive interdependence: Team members rely on one another to achieve the goal. If any team member fails to do their part, everyone suffers the consequences.</li> <li>• Individual accountability: All students within the group are held accountable for doing their share of the work.</li> <li>• Cooperative learning for problem solving:             <ul style="list-style-type: none"> <li>○ Division of labor among students in the group.</li> <li>○ Face-to-face interaction between students.</li> <li>○ Assignment of specific roles and duties to students.</li> <li>○ Group processing of a task.</li> <li>○ Positive interdependence in which students all need to do their assigned duties in order for the task to be completed.</li> <li>○ Individual accountability for completing one's own assigned duties.</li> <li>○ Group members responsible for the behavior of all members. If a team member displays inappropriate</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Cooperative activities or activities that focus on a group goal.</li> <li>• Group processing: Groups set goals, assess what they are doing well and identify changes they will make to function more effectively in the future.</li> <li>• Cooperative games and activities that develop positive social interaction, increase self-confidence and self-esteem. <a href="http://www.pecentral.org/lessonideas/VielLesson.asp?ID=774#.V6Sms7f6vcs">http://www.pecentral.org/lessonideas/VielLesson.asp?ID=774#.V6Sms7f6vcs</a></li> <li>• Students participate in a land- or water-based alternative pursuit activity near or away from the school. Examples:             <ul style="list-style-type: none"> <li>○ orienteering at a local park</li> <li>○ hiking or backpacking</li> <li>○ canoeing</li> <li>○ cycling</li> <li>○ cross-country skiing</li> </ul>             Involve students in planning the outing, developing a risk-management plan and identifying ways to accommodate the varying abilities of participants. Example: Hiking and backpacking requires students to think about backpacks in regard to:             <ul style="list-style-type: none"> <li>○ Fit and size</li> <li>○ How to wear</li> </ul> </li> </ul>

		<p>behavior, it is the duty of fellow members to remind that student to `check' him/herself. The members attempt to refocus the misbehaving student by offering help and suggestions.</p>	<ul style="list-style-type: none"> <li>○ How to pack</li> <li>○ What to pack</li> </ul> <p>*Note: Check school/division policy regarding choice of alternative pursuit activities outside of school.</p>
<p><b>Resources:</b>          SHAPE America National Standards and Grade-Level Outcomes; <a href="http://www.pecentral.org/climate/january99article.html">http://www.pecentral.org/climate/january99article.html</a></p>			

**VA SOL Standard:** 9.4 The student will explain and demonstrate the skills needed to be safe, responsible and respectful in all physical activity settings.

**ESSENTIAL UNDERSTANDING**

- Safety has to be thought out and planned prior to engaging in physical activity.

<p><b>VDOE Standard(s) Student Friendly Language</b> What will the student know and be able to do?</p>	<p><b>SUGGESTED / SAMPLE ASSESSMENTS</b></p>	<p><b>Terms (Vocabulary) and Content Information</b></p>	<p><b>SUGGESTED / SAMPLE ACTIVITIES</b></p>																								
<p><b>9.4 g)</b> Apply best practices for participating safely in physical activity, exercise and dance (e.g., injury prevention, proper alignment, hydration, use of equipment, implementation of rules, sun protection).</p> <p><b>Suggested Learning Targets:</b></p> <p>I can identify safe practices for (selected activities) that include (injury prevention, proper alignment, hydration, use of equipment, implementation of rules and/or sun protection) and describe it to a peer.</p> <p>I can demonstrate safe practices in (selected activity) and describe them in an exit ticket.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Student knowledge of safe practices of a variety of activities.</li> <li>• Have students take the Sun Safety IQ test from <a href="http://www.cancer.org">www.cancer.org</a>.</li> <li>• Compare and contrast safety for indoor versus outdoor activities; short duration versus long duration activities; role of training and knowledge of skill/techniques in preventing injury in two different activities.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Written: Analysis of safety practices for (selected activity).</li> <li>• Performance: Application of safe practices in (selected activity) – rubric or checklist is dependent on the complexity of the activity.</li> <li>• Provide students with the following list of terms and phrases, which include examples of physical activities, exercise techniques and physiological reasons for using proper exercise techniques:                             <ul style="list-style-type: none"> <li>○ half neck circles (forward)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Choose types of physical activity that are appropriate for current fitness level and health goals. Increasing physical activity gradually over time whenever more activity is necessary to meet health goals.</li> <li>• Be protected by using appropriate gear and sports equipment, looking for safe environments, following rules and procedures. Examples:                             <ul style="list-style-type: none"> <li>○ Policies that promote the use of bicycle helmets reduce the risk of head injury among cyclists.</li> <li>○ Rules against diving into shallow water at swimming pools prevent head and neck injuries.</li> <li>○ Tips to prepare for an outdoor adventure such as: developing trip itineraries; carrying appropriate equipment, including guides, maps and a compass; sufficient food and water; dressing in proper clothing; carrying emergency contact numbers; and preparing for access to shelter, such as tents, cabins or lean-tos</li> <li>○ <a href="http://kidshealth.org/en/teens/sport-safety.html?WT.ac=ctg#catdieting">http://kidshealth.org/en/teens/sport-safety.html?WT.ac=ctg#catdieting</a></li> </ul> </li> <li>• Make good choices about when, where and how to be active to reduce possible injuries and adverse events that can be prevented.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide safe practices for all activities that students are engaged in during physical education classes.</li> <li>• Cover the answers to exercise techniques and physiological reasons for using proper exercise techniques, which includes: examples of physical activities, exercise techniques and physiological reasons for using proper exercise techniques.</li> </ul> <table border="1" data-bbox="1457 792 2018 1338"> <thead> <tr> <th>Exercise Activity</th> <th>Exercise Technique</th> <th>Physiological Reason</th> </tr> </thead> <tbody> <tr> <td>hamstring stretch</td> <td>perform in seated position</td> <td>reduce lower back strain</td> </tr> <tr> <td>low-impact “aerobics” class</td> <td>keep one foot on the floor at all times</td> <td>prevent wear and tear on joints</td> </tr> <tr> <td>lat. pull-down</td> <td>pull bar down to chest</td> <td>reduce lower back strain</td> </tr> <tr> <td>wall squat</td> <td>bend knees to 90° angle or less</td> <td>prevent strain on knee joints</td> </tr> <tr> <td>standing dumbbell overhead press</td> <td>keep shoulders forward of body’s midline</td> <td>prevent shoulder impingement</td> </tr> <tr> <td>lunge</td> <td>bend knees to 90° angle or less</td> <td>prevent strain on knee joints</td> </tr> <tr> <td>half neck circles (forward)</td> <td>keep head forward of body’s midline</td> <td>prevent strain/weight load on cervical spine</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• Have students check all equipment before use.</li> <li>• Model safe practices by ensuring students are properly warmed up, have the requisite knowledge and skills to participate, are</li> </ul>	Exercise Activity	Exercise Technique	Physiological Reason	hamstring stretch	perform in seated position	reduce lower back strain	low-impact “aerobics” class	keep one foot on the floor at all times	prevent wear and tear on joints	lat. pull-down	pull bar down to chest	reduce lower back strain	wall squat	bend knees to 90° angle or less	prevent strain on knee joints	standing dumbbell overhead press	keep shoulders forward of body’s midline	prevent shoulder impingement	lunge	bend knees to 90° angle or less	prevent strain on knee joints	half neck circles (forward)	keep head forward of body’s midline	prevent strain/weight load on cervical spine
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- reduce lower back strain
  - bend knees to 90° angle or less
  - hamstring stretch
  - keep head forward of body's midline
  - prevent wear and tear on joints
  - pull bar down to chest
  - prevent strain on knee joints
  - prevent strain/weight load on cervical spine
  - lat pull-down (latissimus dorsi)
  - bend knees
  - low-impact "aerobics" class
  - keep shoulders forward of body's midline
  - standing dumbbell overhead press
  - lunge
  - prevent shoulder impingement
  - perform in seated position
  - curl-up (abdominal)
  - keep one foot on floor at all times
  - wall squat
- Working in small groups, students place the terms and phrases in the appropriate column(s) of a chart that has the following headings. (Note that terms may apply to more than one heading.)

Exercise Activity	Exercise Technique	Physiological Reason

Example: During very hot and humid weather, lessen the chances of dehydration and heat stress by –

- Exercising in the cool of early morning as opposed to mid-day heat.
- Switching to indoor activities.
- Changing the type of activity.
- Lowering the intensity of activity.
- Paying close attention to rest, shade, drinking enough fluids and other ways to minimize effects of heat.

- Utilize proper protection for sun exposure such as sunscreen, hat, clothing that protects from UV rays, sun glasses with protective lens to protect eyes.
- Equipment for an activity that may range from general items of clothing to special protective suits or apparatus. Example: Having the right footwear and clothing for physical activity for both comfort and safety.
  - Choose the right workout clothing that is ideal for your exercise and body type for safety. Clothing that enables the right amount of movement to perform the activity correctly and comfortably. For instance, if you wear jeans and try to stretch, you won't be able to push your body as far. <https://medlineplus.gov/ency/patientinstructions/000817.htm>

allowed to protect themselves from sun exposure as appropriate (sun glasses, hats), ensure equipment is safe.

- Safety precautions for different recreational activities. Examples:
  - Hiking: Bring a charged mobile phone, warm clothing and supplies such as water and light food or energy bars, a flashlight or headlamp, rain gear, sunscreen and matches. Travel in groups or with another person whenever possible. Look out for challenges you may encounter in the outdoors, such as wildfires, sudden storms, muddy trail conditions and fast moving waters. Wear light-colored clothing and long pants and long-sleeved shirts to protect against ticks and other biting insects.
  - Boating and paddling: wear a personal floatation device, check the weather forecast before heading out on the water and seek immediate shelter on shore if you hear thunder. If paddling in waters where there are motorboats, keep close to shorelines and out of main channels.

**Resources:**  
 SHAPE America National Standards and Grade-Level Outcomes; <http://www.health.harvard.edu/healthbeat/10-tips-for-exercising-safely>;  
<http://www.cancer.org/healthy/besafeinthesun/index>; <http://www.fs.fed.us/recreation/safety/safety.shtml>;  
<http://www.cdc.gov/homeandrecreationalsafety/water-safety/waterinjuries-factsheet.html>; <http://kidshealth.org/en/teens/safety-inline.html?WT.ac=ctg#catdieting>;  
<http://kidshealth.org/en/teens/safety-golf.html?WT.ac=ctg#catdieting>; <http://www.fitnessstipsforlife.com/workout-clothing-why-it-is-important.html>;  
[http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/FitnessBasics/Warm-Up-Cool-Down\\_UCM\\_430168\\_Article.jsp#.V7G32bf6vcs](http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/FitnessBasics/Warm-Up-Cool-Down_UCM_430168_Article.jsp#.V7G32bf6vcs)

**VA SOL Standard:** 9.4 The student will explain and demonstrate the skills needed to be safe, responsible and respectful in all physical activity settings.

**ESSENTIAL UNDERSTANDINGS**

- Working with others and encouraging teamwork will build confidence and support within a group.
- Positive relationships play a crucial role in well-being, thus opportunities for social interaction through physical activity in the community could vastly improve the well-being of individuals as well as the community as a whole.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.4 h)</b> Analyze and compare psychological benefits derived from various physical activities (e.g., decreased stress and anxiety, increased self-esteem, increased mental alertness, improved mood).</p> <p><b>Suggested Learning Targets:</b></p> <p>I can analyze and compare social and emotional benefits of two different physical activities. (may include one activity done alone and one activity done with others) and demonstrate it through a graphic organizer.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Student knowledge of the emotional and social health (mental health) benefits of physical activity.</li> <li>• Investigate opportunities for physical activities appropriate to your area that encourage social interaction. Examples: Skiing, hiking, biking, walking tracks or rock climbing.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Student selects two physical activities and compares the social and emotional benefits of participation in the activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Social and emotional benefits of participation in a variety of physical activities:             <ul style="list-style-type: none"> <li>○ Improves mental health and mood.</li> <li>○ Reduces the risk of depression and anxiety.</li> <li>○ Develops higher self-esteem and body image.</li> <li>○ Helps develop basic motor skills needed for day-to-day life.</li> <li>○ Effective in promoting mutual understanding and empathy.</li> <li>○ Builds character– social skills like teamwork, cooperation and leadership.</li> <li>○ Ability to handle winning and losing while being a good sport.</li> <li>○ Develop resiliency.</li> <li>○ Helps develop discipline.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Emphasize the role of physical activity as a means for group membership and positive social interaction and the importance of this type of interaction throughout history and in different cultures.</li> <li>• Make connections between an activity and the emotional benefits and social interaction. Example: It is found that group-based walking substantially increased social capital that includes sense of connectedness, collective efficacy, social engagement and acceptance of other groups.</li> </ul>

**Resources:**

SHAPE America National Standards and Grade-Level Outcomes; [http://www.teachpe.com/sports\\_psychology/anxiety.php](http://www.teachpe.com/sports_psychology/anxiety.php);  
[http://www.heart.org/HEARTORG/HealthyLiving/StressManagement/FightStressWithHealthyHabits/Fight-Stress-with-Healthy-Habits\\_UCM\\_307992\\_Article.jsp#.V6eDw\\_36upo](http://www.heart.org/HEARTORG/HealthyLiving/StressManagement/FightStressWithHealthyHabits/Fight-Stress-with-Healthy-Habits_UCM_307992_Article.jsp#.V6eDw_36upo);  
[http://www.heart.org/HEARTORG/HealthyLiving/StressManagement/FourWaystoDealWithStress/Four-Ways-to-Deal-with-Stress\\_UCM\\_307996\\_Article.jsp#.V6eEG\\_36upo](http://www.heart.org/HEARTORG/HealthyLiving/StressManagement/FourWaystoDealWithStress/Four-Ways-to-Deal-with-Stress_UCM_307996_Article.jsp#.V6eEG_36upo)

**VA SOL Standard:** 9.5 The student will explain the importance of energy balance and evaluate current caloric intake and caloric expenditure to maintain optimal health and prevent chronic disease.

**ESSENTIAL UNDERSTANDING**

- The body needs sugar, sodium and fat in appropriate quantities for body functioning.

<p><b>VDOE Standard(s)</b>  <b>Student Friendly Language</b>            What will the student know and be able to do?</p>	<p><b>SUGGESTED / SAMPLE ASSESSMENTS</b></p>	<p><b>Terms (Vocabulary) and Content Information</b></p>	<p><b>SUGGESTED / SAMPLE ACTIVITIES</b></p>
<p><b>9.5 a)</b> Explain the body's physiological response to sugar, sodium and fat.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can explain how the body uses and responds to low and/or increased amounts of sugar, sodium and fat and demonstrate it in my journal.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>Define and describe knowledge of sugar, sodium and fat.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>Written: Research/investigation of how the body processes/responds to sugar, sodium, fat; what the body needs; how the body uses, eliminates or stores each.</li> </ul>	<ul style="list-style-type: none"> <li><b>Sugar:</b> Sugar digestion begins in the mouth but most occurs in the small intestine where enzymes break sugar down to monosaccharides that are carried to the liver where it is converted to glucose; glucose is either used for energy or stored for later use; glucose is important and necessary fuel for the body; liver and kidneys produce it naturally; hormone, insulin, is released from cells located in the pancreas and regulates how much sugar circulates in the blood stream; insulin speeds up the transfer of sugar from your blood and delivers it to muscle, liver and fat tissues to be used as fuel or stored for the body to use later; if a person does not have enough insulin, sugar accumulates in the blood stream and a person has diabetes (several causes – see diabetes education website); sugar is a carbohydrate; the body processes table sugar (empty calories) and sugar in fruit (nutrients, fiber, lower calories) the same way; a diet that is very high in sugar content, especially refined sugar – if not burned, excess sugar turns to fat, difficult to burn off fat because it takes a lot of energy.</li> <li><b>Sodium:</b> Found in salt; sodium is an electrolyte. Our kidneys maintain the balance of electrolytes and water by regulating the fluids that we take in and pass out of our bodies. If this balance is disturbed, our muscles, nerves and organs won't function correctly because the cells can't generate muscle contractions and nerve impulses. Too little salt results in hyponatremia; can happen when a person sweats excessively. If you have very strong cravings for salt, you may be dehydrated or lacking one of the minerals in table salt. But an</li> </ul>	<ul style="list-style-type: none"> <li>Review of basic information for sugar, sodium and fat.</li> <li>Ask students to investigate what happens if a person takes in too much or too little sugar, sodium and fat.</li> </ul>

		<p>extreme salt craving can be a symptom of more serious diseases. Too much sodium results in hypernatremia; blood volume can increase, making the heart pump harder and is linked to high blood pressure. Dietary guidelines recommend less than 2300 mg of sodium per day (less than half a teaspoon).</p> <ul style="list-style-type: none"><li>• Fat– transfers vitamins A, D, E and K in the blood that are needed for growth and healthy skin; takes longer to digest than carbohydrates or proteins which helps to satisfy hunger longer than other nutrients; foods high in fat are usually high in calories; consuming excess amounts of fats increases risk of unhealthful weight gain and obesity.</li></ul>	
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**Resources:**

SHAPE America National Standards and Grade-Level Outcomes; <http://www.cdc.gov/>;  
<http://drc.ucsf.edu/types-of-diabetes/type1/understanding-type-1-diabetes/basic-facts/what-is-diabetes-mellitus/>

**VA SOL Standard:** 9.5 The student will explain the importance of energy balance and evaluate current caloric intake and caloric expenditure to maintain optimal health and prevent chronic disease.

**ESSENTIAL UNDERSTANDING**

- Physical activity is a key determinant of energy expenditure and thus fundamental to energy balance and weight control.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.5 b)</b> Assess and analyze current energy balance, to include intake and expenditure, activity levels, food choices and amount of sleep.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can track my caloric intake, expenditure (physical activity) and hours of sleep for one week and demonstrate it in log.</p> <p>I can identify my areas for improvement and areas to maintain for my intake and expenditure, activity levels, food choices and amount of sleep in relation to recommended guidelines and demonstrate it in my journal.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>Seven day data log for caloric intake, food choices, physical activity (amount per day and at what level of intensity) and number of hours of night sleep.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>Student reflection of results of seven day energy balance tracking. Identify areas for improvement and maintenance based on recommended guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>Energy balance           <ul style="list-style-type: none"> <li>Energy in: Food calories taken into the body through food and drink.</li> <li>Energy out: Calories being used in the body for our daily energy requirements. When it comes to “energy out,” the body’s energy needs include the amount of energy required for maintenance at rest, physical activity and movement and for food digestion, absorption and transport.</li> </ul> </li> <li>Caloric intake  <a href="http://www.choosemyplate.gov/supertracker-tools/daily-food-plans.html">http://www.choosemyplate.gov/supertracker-tools/daily-food-plans.html</a> </li> <li>Activity (expenditure)  <a href="http://www.cdc.gov/physicalactivity/basics/index.htm">http://www.cdc.gov/physicalactivity/basics/index.htm</a>  <a href="https://www.supertracker.usda.gov/">https://www.supertracker.usda.gov/</a> </li> <li>Food choices           <ul style="list-style-type: none"> <li><a href="http://www.choosemyplate.gov/supertracker-tools/daily-food-plans.html">http://www.choosemyplate.gov/supertracker-tools/daily-food-plans.html</a></li> <li><a href="http://kidshealth.org/en/teens/fad-diet-tips.html?WT.ac=ctg#catdieting">http://kidshealth.org/en/teens/fad-diet-tips.html?WT.ac=ctg#catdieting</a></li> </ul> </li> <li>Sleep  <a href="http://www.cdc.gov/Features/Sleep/">http://www.cdc.gov/Features/Sleep/</a> </li> <li>Importance of sleep:</li> </ul>	<ul style="list-style-type: none"> <li>Teacher-created chart or electronic forms or online applications to track caloric intake, food choices, physical activity (amount per day and at what level of intensity) and number of hours of night sleep.</li> <li>Recommend instruction of 9.5.b as a pre-requisite to 9.5.d.</li> <li>Discussions on: activity levels, food choices and amount of sleep. Example – Signs that you may need more sleep:           <ul style="list-style-type: none"> <li>Difficulty waking up in the morning.</li> <li>Inability to concentrate.</li> <li>Falling asleep during classes.</li> <li>Feelings of moodiness and even depression.</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>○ Brain Function: While you're sleeping, your brain is preparing for the next day. It's forming new pathways to help you learn and remember information. Studies show that a good night's sleep improves learning.</li> <li>○ Physical Health: Sleep is involved in healing and repair of your heart and blood vessels. Ongoing sleep deficiency is linked to an increased risk of heart disease, kidney disease, high blood pressure, diabetes, stroke and it increases the risk of obesity. The right amount of sleep also reduces heart rate and blood pressure.</li> <li>○ Productivity/Safety: Getting enough sleep helps you function well throughout the day. People who are sleep deficient are less productive at work and school. They take longer to finish tasks, have a slower reaction time and make more mistakes.</li> </ul>	
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**Resources:**  
 SHAPE America National Standards and Grade-Level Outcomes; <https://www.supertracker.usda.gov/>; <http://www.cdc.gov/Features/Sleep/>;  
<http://www.nhlbi.nih.gov/health/health-topics/topics/sdd/why>; <https://newsinhealth.nih.gov/issue/apr2013/feature1>;  
<http://www.nhlbi.nih.gov/health/health-topics/topics/obe/causes>

<b>VA SOL Standard:</b> 9.5 The student will explain the relationship of caloric intake, caloric expenditure and body composition.			
<b>ESSENTIAL UNDERSTANDINGS</b>			
<ul style="list-style-type: none"> <li>• There is no ideal body weight or body type for everyone.</li> <li>• Body composition analysis is an important part of your fitness assessment and should be considered in relation to other fitness assessments.</li> <li>• Many factors influence body composition, including gender, age, diet, activity level and genes/heredity.</li> </ul>			
<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.5 c)</b> Explain body composition, using body mass index (BMI) and other measures, the variety of body types and healthy body weight.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can explain the relationship between body composition and healthy body weight using a graphic organizer.</p> <p>I can describe a variety of measures used for body composition to a peer.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Define and describe body composition.</li> <li>• Describe different ways to measure body composition.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Written: Students investigate– <ul style="list-style-type: none"> <li>○ What is a healthy weight for me?</li> <li>○ How do I know?</li> <li>○ How do I monitor weight?</li> </ul> </li> <li>• Written: Describe one body-composition measure and demonstrate how to implement/calculate.</li> </ul>	<ul style="list-style-type: none"> <li>• Body composition: The relative proportion by weight of fat and lean tissue; the proportion of fat, muscle and bone of an individual's body, usually expressed as percentage of body fat and percentage of lean body mass; ratio of body fat to lean body tissue, including muscle, bone, water and connective tissue.</li> <li>• Body type is determined by heredity: <ul style="list-style-type: none"> <li>○ Mesomorph– characterized by low-to-medium percentage of body fat, medium-to-large bone size and a large amount of muscle mass and size; muscular and broader shoulders</li> <li>○ Endomorph– characterized by high percentage of body fat, large bone size and a small amount of muscle mass and size; rounder and broader hips</li> <li>○ Ectomorph– characterized by low percentage of body fat, small bones size and a small amount of muscle mass and size; slender and tall</li> </ul> </li> <li>• Body composition measurement <ul style="list-style-type: none"> <li>○ BMI: body mass index <a href="http://www.cdc.gov/healthyweight/assessing/bmi/index.html">http://www.cdc.gov/healthyweight/assessing/bmi/index.html</a></li> <li>○ Underwater Weighing: The most accurate method for measuring body composition. Underwater weighing involves submerging a person in a tank of water and having him/her expel the air out of his/her lungs. This method is not easy to administer and can be very expensive. Error of underwater weighing is 2 to 2.5%.</li> <li>○ Skinfold Measurement: Measure the subcutaneous fat folds around specific body parts (triceps, waist, thigh and back) with skin calipers. The accuracy of the skinfold test depends upon the person performing it, the integrity of the skin</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Provide appropriate websites for student investigation.</li> <li>• Provide students with appropriate options for body composition measures/measurements.</li> </ul>

caliper and the kind of formula one uses to calculate percentage of body fat. These, in turn, increase chances for error, which is 3 to 3.5%, but could be as high as 5%.

- Bioelectrical Impedance: A simple, non-invasive technique that uses electrical conductivity to estimate lean body mass. This test is dependent upon hydration status because muscle holds most of the water in the body; so, the more muscle, the better the conduction. The error of bioelectrical impedance is 3 to 3.5%.
- Circumferences taken of various body parts with a soft measuring tape: Common circumferences taken are the neck, chest, arms, forearms, waist, hip, thighs and calves. There are equations which allow you to estimate body fat percentage using circumferences.

- Body Fat Ranges

	Men	Women
Exceptionally Lean	6 - 10%	10 - 15%
Very Lean	11 - 14%	16 - 19%
Lean	15 - 19%	20 - 25%
Moderate	19 - 24%	26 - 29%
Obese	25%+	30%+

- There is not an ideal weight for everyone; weight ranges take into account age, gender, height, body type, growth rate, metabolic rate, activity level

**Resources:**

SHAPE America National Standards and Grade-Level Outcomes

<http://www.nhlbi.nih.gov/health/educational/wecan/healthy-weight-basics/balance.htm>; <http://www.cdc.gov/healthyweight/assessing/bmi/index.html>

<http://kidshealth.org/en/teens/healthy-weight-plan.html?WT.ac=ctg#catdieting>; <http://teenshealth.org/en/teens/help-body.html>;

<http://kidshealth.org/en/teens/food-fitness/>; <http://kidshealth.org/en/teens/bmi.html?WT.ac=ctg#catdieting>

**VA SOL Standard:** 9.5 The student will explain the importance of energy balance and evaluate current caloric intake and caloric expenditure to maintain optimal health and prevent chronic disease.

**ESSENTIAL UNDERSTANDINGS**

- Physical activity is a key determinant of energy expenditure and thus fundamental to energy balance and weight control.
- Two people who are the same height and weight may need different amounts of energy or calories to maintain their weight, depending on their body composition.

<b>VDOE Standard(s)</b> <b>Student Friendly Language</b> What will the student know and be able to do?	<b>SUGGESTED / SAMPLE ASSESSMENTS</b>	<b>Terms (Vocabulary) and Content Information</b>	<b>SUGGESTED / SAMPLE ACTIVITIES</b>
<p><b>9.5 d)</b> Design and implement a plan to maintain an appropriate energy balance for a healthy, active lifestyle, to include intake, expenditure (levels of intensity) and sleep.</p> <p><b>Suggested Learning Targets:</b></p> <p>I can set goals for energy balance and create a plan with action steps to achieve the goals through my wellness portfolio.</p> <p>I can implement a plan for energy balance that includes intake, expenditure (levels of intensity) and sleep for (selected time frame) and demonstrate it to my teacher.</p> <p>I can evaluate my energy balance goal(s) attainment at the end of my plan in my wellness portfolio.</p>	<p><b>Assessment for Learning (Formative)</b></p> <ul style="list-style-type: none"> <li>• Student's energy balance assessment conducted for 9.5.b.</li> </ul> <p><b>Assessment of Learning (Summative)</b></p> <ul style="list-style-type: none"> <li>• Energy balance plan includes goals for intake, expenditure and sleep; action steps, documentation over (selected time period), reflection of goal progress during plan implementation and/or reflection of goal attainment at end of plan period</li> </ul>	<ul style="list-style-type: none"> <li>• Caloric intake <a href="http://www.choosemyplate.gov/supertracker-tools/daily-food-plans.html">http://www.choosemyplate.gov/supertracker-tools/daily-food-plans.html</a></li> <li>• Activity (expenditure) <a href="http://www.cdc.gov/physicalactivity/basics/index.htm">http://www.cdc.gov/physicalactivity/basics/index.htm</a>  <a href="https://www.supertracker.usda.gov/">https://www.supertracker.usda.gov/</a></li> <li>• Food choices <a href="http://www.choosemyplate.gov/supertracker-tools/daily-food-plans.html">http://www.choosemyplate.gov/supertracker-tools/daily-food-plans.html</a></li> <li>• Sleep <a href="http://www.cdc.gov/Features/Sleep/">http://www.cdc.gov/Features/Sleep/</a></li> </ul>	<ul style="list-style-type: none"> <li>• Recommend instructing 9.5.d in connection to 9.5.b.</li> <li>• Utilize assessment conducted in 9.5.b as the basis for the energy balance plan.</li> <li>• <a href="http://kidshealth.org/en/teens/lose-weight-safely.html?WT.ac=ctg#catdieting">http://kidshealth.org/en/teens/lose-weight-safely.html?WT.ac=ctg#catdieting</a></li> </ul>

**Resources:**

SHAPE America National Standards and Grade-Level Outcomes;

<https://www.supertracker.usda.gov/>; <http://www.cdc.gov/Features/Sleep/>; <http://classroom.kidshealth.org/classroom/9to12/body/functions/sleep.pdf>;  
<http://www.nhlbi.nih.gov/health/educational/wecan/healthy-weight-basics/balance.htm>

