

# The **OPEN** Academic Language Project

Based on the Virginia Physical Education Standards of Learning

Academic Language Card Set  
**FITNESS**  
**INSTRUCTOR**  
Anatomical Basis of Movement



More Physical Education Curriculum Tools at [www.OPENPhysEd.org](http://www.OPENPhysEd.org)  
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# ACUTE

(Adjective)

Of a condition, disease, experience, or effect of short duration (although often severe or intense).

The acute effects of exercise can include increased heart rate and perspiration.

(VA SOL FI.2)

# AEROBIC ENERGY SYSTEM

(Noun)

The energy pathway in which oxygen provides the chemical catalyst for the generation of energy. This system is associated with longer, more sustained forms of physical activity.

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When Chandler was jogging in the Halloween 5K, his body was using its aerobic energy system to fuel his run.  
(VA SOL FI.2)

# AGONIST

(Noun)

A muscle whose contraction moves a part of the body directly; also known as a prime mover. Its contraction is regulated by a paired muscle known as an antagonist.

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The agonist used in an arm curl is the biceps, while the triceps acts as the antagonist.

(VA SOL FI.2)

# ANAEROBIC ENERGY SYSTEM

(Noun)

The energy pathway in which energy is generated without the use of oxygen. In humans, glycolysis is the main anaerobic metabolic pathway. This system is associated with quick bursts of physical activity that require an immediate source of energy.

When he was sprinting with the track team, Paul's body used the anaerobic energy system to supply quick energy to his muscles.

(VA SOL FI.2)

# ANATOMICAL

(Adjective)

Of or relating to bodily structure/anatomy.

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Dr. Gato had his students use anatomical terms to describe how each exercise is performed.

(VA SOL FI.2)

# ANATOMY

(Noun)

The branch of science concerned with the bodily structure of humans, animals, and other living organisms.

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Billy wanted to learn more about anatomy so that he could understand how the body functions and performs.

(VA SOL FI.2)

# ANTAGONIST

(Noun)

A muscle that opposes and regulates the actions of another muscle.

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Linzy just learned that during an arm curl exercise, the triceps act as an antagonist to the biceps.

(VA SOL FI.2)



# ATHLETIC PERFORMANCE

(Noun)

A physical performance associated with a specific sport or physical activity.

Deedi provided an amazing athletic performance during the ballet with tremendous acts of strength, power, coordination, and gracefulness.

(VA SOL FI.2)

# BLOOD PRESSURE

(Noun)

The pressure of the blood against the inner walls of the blood vessels, varying in different parts of the body during different phases of contraction of the heart and under different conditions of health, exertion, etc.

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The class learned that coronary artery disease can cause high blood pressure because blood flow is impeded by a buildup of plaque and a hardening of the arteries.

(VA SOL FI.2)

# BODY COMPOSITION

(Noun)

The percentage of fat, muscle, bone, and water found in a human body.

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Understanding body composition can help a person understand their overall health and personal fitness.

(VA SOL FI.2)

# BONE

(Noun)

Hard, whitish tissue consisting mostly of calcium and collagen and making up the skeleton in humans and other vertebrates.

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A few of the major bones in the human body include the cranium, the rib cage, and the pelvis.

(VA SOL FI.2)

# CARDIORESPIRATORY

(Adjective)

Relating to the action of both the heart and the lungs.

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Moe wanted to increase his cardiorespiratory endurance, so he planned to participate in a variety of aerobic exercises.

(VA SOL FI.2)

# CHRONIC

(Adjective)

Relating to the long-term impact or effects of a behavior or condition.

Chronic exercise can help individuals improve their overall wellness and mental health.

(VA SOL FI.2)

# CONDITION

(Verb)

To train or exercise for a specific purpose.

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Nolan worked to condition his core in order to improve his posture.

(VA SOL FI.2)

# CONTRACT

(Verb)

To become shorter or tighter in order to affect movement of part of the body.

It is easy to observe your muscles contracting when you perform a biceps curl.

(VA SOL FI.2)



# COOL DOWN

(Noun)

A period or act of slowing physiological movement back to normal after a game, performance, or exercise session, involving gentle exercise or practice.

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It is important to perform a cool down after strenuous exercise, such as running.

(VA SOL FI.2)

# DECONDITION

(Verb)

To lose fitness or muscle tone, especially through lack of exercise.

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When Ollie got injured and couldn't follow his usual exercise routine, his muscles started deconditioning.

(VA SOL FI.2)

# **DELAYED ONSET MUSCLE SORENESS (DOMS)**

(Noun)

The pain and/or muscle stiffness that occurs after an unfamiliar or strenuous exercise.

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Every year during volleyball tryouts, Stasia experiences delayed onset muscle soreness (DOMS) because she isn't accustomed to working certain muscles.

(VA SOL FI.2)

# FRONTAL PLANE

(Noun)

Any vertical plane that divides the body into ventral and dorsal (belly and back) sections.

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In anatomy and physiology, Donna could tell she was examining the frontal plane of human movement because she could see the model's face.  
(VA SOL FI.2)

# HEALTH-RELATED FITNESS

(Noun)

Five physical fitness components that directly relate to good health which include: cardiovascular endurance, muscular strength, flexibility, muscular endurance and body composition.

Sheneeka did a pre-assessment of her health-related fitness components and concluded her muscular strength required improvement.

(VA SOL FI.2)

# HINGE JOINT

(Noun)

A common class of synovial joint (including the ankle, elbow, and knee joints) formed between two or more bones which only allows those bones to move along one axis in order to flex or extend.

Hinge joint injuries, like a torn ACL or a sprained ankle, can be very painful and require a good deal of time to heal.

(VA SOL FI.2)

# INFLAMMATORY RESPONSE

(Noun)

The bodily response to a disease or injury that can be characterized by pain, heat, redness, or swelling.

When Charlie got hit in the knee with a baseball, the trainer gave him ice to put on it in order to reduce the inflammatory response.

(VA SOL FI.2)

# INSERTIONS

(Noun)

The point at which a muscle attaches to the bone.

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The biceps brachii is an insertion that attaches the biceps to the bone.

(VA SOL FI.2)



# JOINT

(Noun)

A structure in the human or animal body at which two parts of the skeleton fit together.

One should always use proper form when performing exercise in order to avoid injury to joints like ankles, knees, elbows, and others.

(VA SOL FI.2)

# LOWER EXTREMITY

(Noun)

The portion of a lower limb which extends from the knee to the ankle.

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The calf is the predominate muscle of the lower extremity.

(VA SOL FI.2)

# MOBILITY

(Noun)

The ability to move or be moved freely and easily.

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Physical therapy can help a patient maintain mobility as an injury heals by preventing deterioration of the area's range of motion.  
(VA SOL FI.2)

# MULTIAXIAL JOINT (BALL AND SOCKET)

(Adjective)

A joint in which movement occurs along a number of different axes.

A multiaxial joint, such as the shoulder or the hip, allows for a wide range of movement.

(VA SOL FI.2)

# MUSCLE

(Noun)

A band or bundle of fibrous tissue in a human or animal body that has the ability to contract, producing movement in or maintaining the position of parts of the body

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A few of the major muscles in the human body include the quadriceps, the biceps, and the obliques.  
(VA SOL FI.2)

# MUSCLE CONTRACTION

(Noun)

The movement of tension-generated sites within muscle fibers in response to load or force; causes the muscle to tighten and shorten.

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Christian watched the muscle contraction in his arm as he was lifting weights.

(VA SOL FI.2)

# MUSCLE FATIGUE

(Noun)

A decline in a muscle's ability to generate force; usually a result of vigorous exercise, but abnormal fatigue may be caused by barriers to or interference with the different stages of muscle contraction.

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Despite the muscle fatigue Josh was experiencing in his legs and core, he pushed through and finished the marathon.

(VA SOL FI.2)

# MUSCLE FUNCTION

(Noun)

The role a muscle of the body performs in order to enable movement. Include stabilizer, agonist (prime mover), antagonist, synergistic, and neutralizer.

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Most body movements involve simultaneous activity in a number of muscles, which is made possible by the different muscle function each one plays.

(VA SOL FI.2)



# MUSCLE FUNCTION: AGONIST

(Noun)

A muscle whose contraction moves a part of the body directly; also known as a prime mover. Its contraction is regulated by a paired muscle known as an antagonist.

The agonist used in an arm curl is the biceps, while the triceps acts as the antagonist.

(VA SOL FI.2)

# MUSCLE FUNCTION: ANTAGONIST

(Noun)

A muscle that opposes and regulates the actions of another muscle.

---

Linzy just learned that during an arm curl exercise, the triceps act as an antagonist to the biceps.

(VA SOL FI.2)

# MUSCLE FUNCTION: NEUTRALIZER

(Noun)

A muscle that counterbalances or counteracts the effect of an unwanted movement; pulls against the unwanted movement in order to cancel it out.

Neutralizer muscles are important in the prevention of hyperextension in the knees, elbows, and other joints.

(VA SOL FI.2)

# MUSCLE FUNCTION: PRIME MOVER

(Noun)

A muscle whose contraction moves a part of the body directly; also known as an agonist. Its contraction is regulated by a paired muscle known as an antagonist.

As the prime mover, the biceps provides much of the power necessary to perform an arm curl.

(VA SOL FI.2)

# MUSCLE FUNCTION: SYNERGIST

(Noun)

Any muscle working together with another muscle in order to create safe movement.

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If our muscles did not work together as synergists, we would not be able to move and would often become injured.

(VA SOL FI.2)

# MUSCLE ORIGIN

(Noun)

A muscle's point of attachment that remains relatively fixed during contraction.

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Caleb identified the "muscle origin" as the part of the muscle that does not move when it contracts and the "insertion" as the part that does move when it contracts.

(VA SOL FI.2)

# MUSCLE STRUCTURE

(Noun)

The arrangement of the muscular system of an organism.

A person's muscle structure is what allows them to move in all the ways human beings are capable of moving.

(VA SOL FI.2)

# MUSCULOSKELETAL INJURIES

(Noun)

The damage of muscular or skeletal systems, usually as a result of strenuous activity or trauma to a specific body part.

Richard suffered a musculoskeletal injury when he tried to lift too much weight.

(VA SOL FI.2)



# PHYSICAL ACTIVITY

(Noun)

Any bodily movement produced by skeletal muscles that requires energy expenditure.

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Sixty minutes of physical activity should be performed each day in order to maintain good health.

(VA SOL FI.2)

# PLANES OF MOVEMENT

(Noun)

A sectioned off view of the body that includes the frontal plane, the sagittal plane, and the transverse plane.

Kate was taking a test on the planes of movement and answered correctly that a flexion movement can be seen in the sagittal plane.

(VA SOL FI.2)

# POSTURAL ASSESSMENT

(Noun)

The evaluation of a person's posture.

A postural assessment helped Jon learn which areas of his body experienced extra strain due to poor posture during exercise.

(VA SOL FI.2)

# RESISTANCE TRAINING

(Noun)

A type of exercise that uses external resistance to cause muscle contractions with the intent to strengthen and tone, build mass and improve endurance.

Leea implemented resistance training into her fitness plan in order to help her muscles become more toned.

(VA SOL FI.2)

# REVERSIBILITY

(Noun)

The fact that a person's fitness and athletic abilities can diminish over time if they do not train or continue to use them.

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When Travis became frustrated by his lost muscle mass after a month's break from working out, Brendon told him that muscle loss is explained by the principle of reversibility.

(VA SOL FI.2)

# SAGITTAL PLANE

(Noun)

An anatomical plane which divides the body into left and right sides.

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There are yoga poses that create perfect symmetry between both sides of the sagittal plane.

(VA SOL FI.2)

# SKELETAL SYSTEM

(Noun)

The framework of the body, consisting of bones and other connective tissues, which protects and supports the body tissue and internal organs.

Mr. Pashkin asked his students why the skeletal system was important, so Izzi explained that it gives humans their body structure.

(VA SOL FI.2)

# SKILL PERFORMANCE

(Noun)

A series of specific physical activities or tasks combined into a complete routine or a full competitive match.

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Kendra's skill performance was so well done and inspiring that other students decided to try to participate in her sport.  
(VA SOL FI.2)



# SKILL-RELATED FITNESS COMPONENTS

(Noun)

The 6 components of skill-related fitness include:  
Agility, Balance, Coordination, Speed, Power, and  
Reaction Time.

When Mrs. Breeli asked the students to focus on  
one of the skill-related fitness components, Honesty  
chose to work on her agility.

(VA SOL FI.2)

# STRENGTH TRAINING

(Noun)

A type of physical exercise specializing in the use of resistance to induce muscular contraction which builds the strength, endurance, and size of skeletal muscles.

Students can participate in the school's strength training program to learn about the proper ways to lift weights and stay physically active.

(VA SOL FI.2)

# TRANSVERSE PLANE

(Noun)

An imaginary plane that divides the body horizontally near the waist into superior and inferior parts.

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In biomechanics, the students looked at the critical elements of throwing as related to the body above and below the transverse plane.

(VA SOL FI.2)

# UPPER EXTREMITY

(Noun)

The region extending from the deltoid to the hand, including the arm, axilla, and shoulder.

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Kathryn injured her wrist, which is part of the upper extremity of the body.

(VA SOL FI.2)

# WARM-UP

(Noun)

A period or act of preparation for a game, performance, or exercise session, involving gentle exercise or practice.

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Renee did a warm-up before she started her weight training so that she wouldn't pull any muscles.

(VA SOL FI.2)

# WEIGHT MANAGEMENT

(Noun)

Part of a long-term approach to a healthy lifestyle that includes a balance of healthy eating and physical exercise in order to equate energy expenditure and energy intake.

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Mary Beth told Jerry that his weight management plan was not complete because it didn't include healthy eating.  
(VA SOL FI.2)