

## COMPETENCY 1.0

## FUNDAMENTAL MOVEMENTS, MOTOR DEVELOPMENT, AND MOTOR LEARNING

### SKILL 1.1 Fundamental movements: locomotor, nonlocomotor, manipulative, and falling/landing movement skills; movement concepts such as body, space, effort, and relationship

#### LOCOMOTOR SKILLS

Locomotor skills move an individual from one point to another.

1. **Walking** – This form of locomotion has one foot contacting the surface at all times. Walking shifts one's weight from one foot to the other while legs swing alternately in front of the body.
2. **Running** – This is an extension of walking that has a phase where the body is propelled with no base of support (speed is faster, stride is longer, and arms add power).
3. **Jumping** – This involves projectile movements that momentarily suspend the body in midair.
4. **Vaulting** – It is coordinated movements that allow one to spring over an obstacle.
5. **Leaping** – This is similar to running, but leaping has greater height, flight, and distance.
6. **Hopping** - uses the same foot to take off from a surface and land.
7. **Galloping** – This is a forward or backward advanced elongation of walking combined and coordinated with a leap.
8. **Sliding** – It is sideward stepping pattern that is uneven, long, or short.
9. **Body Rolling** This involves moving across a surface by rocking back and forth, by turning over and over, or by shaping the body into a revolving mass.
10. **Climbing** - ascending or descending using the hands and feet with the upper body exerting the most control.

#### NONLOCOMOTOR SKILLS

Nonlocomotor skills are stability skills. These require little or no movement of one's base of support and does not result in change of position.

1. **Bending** - movement around a joint where two body parts meet.
2. **Dodging** - sharp change of direction from original line of movement such as away from a person or object.

3. **Stretching** - extending/hyper-extending joints to make body parts as straight or as long as possible.
4. **Twisting** - rotating body/body parts around an axis with a stationary base.
5. **Turning** - circular movement of the body through space releasing the base of support.
6. **Swinging** - circular/pendular movements of the body/body parts below an axis.
7. **Swaying** - same as swinging but movement is above an axis.
8. **Pushing** – It is an act of applying force against an object or person to move it away from one's body or to move one's body away from the object or person.
9. **Pulling** - executing force to cause objects/people to move towards one's body.

#### MANIPULATIVE SKILLS

Manipulative skills use body parts to propel or receive an object, controlling objects primarily with the hands and feet. Two types of manipulative skills are receptive (catch + trap) and propulsive (throw, strike, kick).

1. **Bouncing/Dribbling** - projecting a ball downwards.
2. **Catching** - stopping momentum of an object (for control) using the hands.
3. **Kicking** - striking an object with the foot.
4. **Rolling** - initiating force on an object to instill contact with a surface.
5. **Striking** - giving impetus to an object with the use of the hands or another object.
6. **Throwing** - using one or both arms to project an object into midair away from the body.
7. **Trapping** - without the use of the hands, receiving and controlling a ball.

#### CONCEPT OF SPATIAL AWARENESS APPLIED TO PHYSICAL EDUCATION ACTIVITIES

Spatial awareness is the ability to make decisions about an object's positional changes in space. In short it is the awareness of three-dimensional space position changes.

Developing spatial awareness requires two sequential phases:

- 1) Identifying the location of objects in relation to one's own body in space, and
- 2) Locating more than one object in relation to each object and independent of one's own body.

Spatial awareness can be increased with the help of certain activities. An example would be activities using different sized balls, boxes, or hoops. You can have the children move towards and away, under and over, in front of and behind, and inside, outside, and beside the objects.

## CONCEPT OF BODY AWARENESS APPLIED TO PHYSICAL EDUCATION ACTIVITIES

Body awareness is a person's understanding of his or her own body parts and the capability of their movements.

Instructors can assess body awareness by watching students play a game of "Simon Says" and asking the students to touch different body parts. You can also instruct students to form their bodies into various shapes, such as, from straight to round to twisted and to fit into different sized spaces.

In addition, you can instruct children to touch one part of their body with another. Also they could be asked to use the various body parts such as to stamp their feet, twist their neck, clap their hands, nod their heads, wiggle their noses, snap their fingers, open their mouths, shrug their shoulders, bend their knees, close their eyes, bend their elbows, or wiggle their toes.

## CONCEPT OF EFFORT QUALITIES APPLIED TO PHYSICAL EDUCATION

Effort qualities are the qualities of movement that apply the mechanical principles of balance, time, and force.

**Balance** - Activities for balance include having children move on their hands and feet, lean, move on lines, and balance and hold shapes while moving.

**Time** - Activities using the concept of time can include having children move as fast as they can and as slow as they can in specified, timed movement patterns.

**Force** - Activities using the concept of force can include having students use their bodies to produce enough force to move them through space. They can also paddle balls against walls and jump over objects of various heights.

**SKILL 1.2 Growth and motor development: role of perception in motor development, such as in spatial movement relationships; neurophysiology of motor control; effects of maturation and experience on motor patterns; biological and environmental influences on gender differences in motor performances**

PERCEPTION AND SPATIAL AWARENESS IN MOTOR CONTROL

**See Skill 1.1**

NEUROPHYSIOLOGY OF MOTOR CONTROL

The nervous system plays a vital role in motor control. It allows for effective use of the skeletal muscles and coordinates with the brain, skeleton, and joints.

Before looking at the function of the nervous system, we must first examine the basic anatomy. First, a muscle consists of a group of muscle fibers. At least one motor nerve, which consists of fibrous extensions (axons) of a group of motor neurons, controls every muscle fiber in the body. As axons enter the muscles, they branch off into terminals forming a neuromuscular junction with a single muscle fiber. A motor neuron together with the muscle fibers it supplies is known as a motor unit.

Muscular contraction occurs when a motor neuron transmits an electrical impulse. The number of muscle fibers per motor unit varies between four and several hundreds. The muscles controlling very fine movements (e.g. fingers and eyes) have very small motor units. Examples of movements controlled by small motor units include writing, sewing, and tying shoelaces. These types of motor skills generally are not present in the early stages of life. Larger muscles (e.g. hips, legs) controlling less precise movements have large motor units. Examples of such movements include walking, throwing objects, and performing sit-ups. These movements are present even in the earliest stages of life.

Proper development and function of the nervous system does not always occur. Improper development results in various diseases that affect motor control including cerebral palsy, dyspraxia, multiple sclerosis, and Parkinson's disease.

## RELATIONSHIP BETWEEN HUMAN GROWTH AND DEVELOPMENT AND APPROPRIATE PHYSICAL ACTIVITY

Understanding the rate of the developmental growth process that occurs during adolescence will help educators understand growth and development norms. It will help them identify early or late maturing students. The age when the puberty growth spurt occurs and the speed with which adolescents experience puberty vary greatly within each gender. It may affect participation in physical activity and sports. If the instructor pays attention to the varying body sizes and maturity stages, forming teams in co-educational classes can easily accommodate the needs of both genders' changing maturities. Starting in middle school and continuing into high school, it is perfectly acceptable for boys and girls to participate in non-contact physical activities together. These activities rely on lower-body strength and agility (e.g. capture the flag, ultimate Frisbee, running). In more physical activities that require upper body strength, coaches should form teams based on individual skill levels to prevent injury. Matching teams evenly based on skill and maturity is important. This ensures that individual skill level deficiencies are not as apparent and the activity remains fun for all participants. Teachers need to monitor and adjust physical activities as required to ensure a positive, competitive experience. Appropriate activities would include individual or partner badminton or tennis matches and team competitions such as flag football.

## BIOLOGICAL AND ENVIRONMENTAL INFLUENCES ON GENDER DIFFERENCES IN MOTOR PERFORMANCES

The differences between males and females in motor performance result from certain biological and environmental influences. Generally, people perceive the males as stronger, faster, and more active than females. This higher activity level can stem from childhood behaviors influenced by certain environmental factors. The superior motor performance results largely from the biological make up of males versus females.

In most cases, the male body contains less fat mass and more muscle mass than the female body. In addition, the type of muscle differs between males and females. Males have more fast-twitch muscle fibers allowing for more short duration, high intensity movements such as jumping and sprinting. In addition, males generally, but not always, display better coordination. Females have proved their superiority at certain activities, such as skipping. They also tend to display better fine movements, such as neater handwriting.

Certain environmental factors also contribute to the gender differences in motor performance. As children, boys tend to be more physically active. Society expects boys to participate in sports and play games that involve running around, such as tag and foot races. On the other hand, society expects girls to be more social and less active. They participate in activities such as playing with dolls. In addition, parents rarely ask girls to perform tasks involving manual labor.

While these sedentary tasks have value, it is important for both males and females to participate in adequate amount of physical activity each day. If children develop this type of active lifestyle early in life, they are more likely to maintain it throughout adulthood.

### **SKILL 1.3 Motor learning: classical and current theories of motor learning, variables that affect learning and performance, effects of individual differences**

Effective physical education supports psychomotor, cognitive, and affective development.

**Physical education through the Psychomotor Domain** contributes to movement skills as a participant and spectator in sports and other physical activities; contributes skills to utilize leisure hours in mental and cultural pursuits; contributes skills necessary to the preservation of the natural environment.

**Physical education in the Cognitive Domain** contributes to academic achievement; is related to higher thought processes via motor activity; contributes to knowledge of exercise, health and disease; contributes to an understanding of the human body; contributes to an understanding of the role of physical activity and sport in the American culture; and contributes to the knowledgeable consumption of goods and services.

**Physical education in the Affective Domain** contributes to self-actualization, self-esteem, and a healthy response to physical activity; contributes to an appreciation of beauty; contributes to directing one's life toward worthy goals; emphasizes humanism; affords individuals the chance to enjoy rich social experiences through play; assists cooperative play with others; teaches courtesy, fair play, and good sportsmanship; contributes to humanitarianism.

#### **Teaching methods to facilitate psychomotor learning include:**

1. **Task/Reciprocal** - The instructor integrates task learning into the learning set up by utilizing stations.
2. **Command/Direct** - Task instruction is teacher-centered. The teacher clearly explains the goals, explains and demonstrates the skills, allocates time for practice, and frequently monitors student progress.

3. **Contingency/Contract** - A style of task instruction that rewards completion of tasks.

**Techniques that facilitate psychomotor learning include:**

1. **Reflex movements** - Activities that create an automatic response to some stimuli. Responses include flexing, extending, stretching, and postural adjustment.
2. **Basic fundamental locomotor movements** - Activities that utilize instinctive patterns of movement established by combining reflex movements.
3. **Perceptual abilities** - Activities that involve interpreting auditory, visual, tactile stimuli in order to coordinate adjustments.
4. **Physical abilities** - Activities to develop physical characteristics of fitness providing students with the stamina necessary for highly advanced, skilled movement.
5. **Skilled movements** - Activities that involve instinctive, effective performance of complex movement including vertical and horizontal components.
6. **Nondiscursive communication** - Activities necessitating expression as part of the movement.

**Teaching methods that facilitate cognitive learning include:**

1. **Problem Solving** - The instructor presents the initial task and students come to an acceptable solution in unique and divergent ways.
2. **Conceptual Theory** - The instructor's focus is on acquisition of knowledge.
3. **Guided Inquiry** – Stages of instructions strategically guide students through a sequence of experiences.

Initially, performance of skills will be variable, inconsistent, error-prone, “off-time,” and awkward. Students' focus will be on remembering what to do. Instructors should emphasize clear information regarding the skill's biomechanics. They should correct errors in gross movement that effect significant parts of the skill. To prevent students from being overburdened with too much information, they should only perform one or two elements at a time. Motivation results from supportive and encouraging comments. Peer to peer encouragement is also very useful and helpful.

**Techniques to facilitate cognitive learning include:**

1. **Transfer of learning** – Identifying similar movements of a previously learned skill in a new skill.
2. **Planning for slightly longer instructions and demonstrations** as students memorize cues and skills.
3. **Using appropriate language** according to the level of each student.
4. **Conceptual Thinking** - giving students who are more capable more responsibility for their learning.

**Aids to facilitate cognitive learning include:**

1. Frequent assessments of student performance
2. Movement activities incorporating principles of biomechanics
3. Laser discs, computers and software
4. Video recordings of student performance

**FACTORS AFFECTING THE LEARNING ENVIRONMENT**

Individual characteristics of students including age, gender, coordination level, physical ability, and fitness level greatly affect the learning environment. Physical education instructors must recognize these individual differences and adapt the learning environment to meet the needs of a diverse student population.

## **COMPETENCY 2.0            MOVEMENT FORMS**

### **SKILL 2.1    Dance and rhythmic activities: dance forms and dance skill analysis**

Students of dance acquire many skills during their course of study. The student identifies and demonstrates movement elements in a dance performance. He/ she uses correct body alignment, strength, flexibility, and stamina (for more demanding performances). Crucial to any form of dance is the concept of coordination in the performance of technical movements. Technical movements must look as though they are easy to perform. The dancer must perform technical dance skills with artistic expression along with musicality and rhythm. As the student progresses, he or she will perform extended movement sequences and rhythmic patterns. The student will then have enough experience to introduce his or her own stylistic nuance into the performance. The student will also be able to improvise to solve movement problems. He or she will learn to make choices based on the movement responses of other dancers in the ensemble. Through continued experience, he or she will become a skillful, seasoned dancer whose technique and ability will transcend any form of dance.

Instructors can create rhythmic activities by putting on music with a strong beat and asking students to dance to the beat. Tell the students to listen to the beat and move accordingly (e.g. stomping their feet or clapping their hands in time with the beat). It's important for children to learn to move to various sounds and use their bodies to mimic the beat. Another idea is to have the students take turns beating on a coffee can while trying to keep movements in synchronization with the rhythm. In more structured dance forms, technique or skill comes into play. For instance, in ballet, dancers must have good flexibility, body control, and coordination. Ballet dancers must also have a sense of rhythm, an understanding of music, good turnout and alignment, and a sense of balance and counterbalance. These skills take many years to acquire. Once they are acquired it takes many more years to master and maintain. Ballet dancing may express a mood, tell a story, or simply reflect a piece of music. It is the most classical of all dance forms. Other types of music may have similar requirements in terms of sense of musicality and rhythm. For example, tap dance requires a greater degree of footwork. Modern dance is comparable to ballet, but is more flowing and less rigid.

### **DANCE CONCEPTS, FORMS, AND BASIC VOCABULARY – JAZZ AND BALLET**

There are several forms of dance including modern, ballet, jazz, country, ballroom, and hip-hop. Though essentially very different from each other, they all have similarities. A sense of musicality is the one common requirement for each of the dance forms. Along with that, timing, coordination, flexibility, and an interest in the concept of dance itself is essential.

We all know that we will probably experience greater success when we engage in activities that we are interested in and enjoy. Understanding of most dance forms requires knowledge of basic vocabulary. Examples for some specific words are turns or kick ball turns in jazz; the shuffle or the flap in tap dance. Ballet has more specialized vocabulary than any other dance form. For example, plie, to bend; tendu, to stretch; degage, to disengage; fouette, to whip; fondu, to melt; ronde jambe, circle of the leg; pirouette, to turn on one leg; port de bras, movement of the arms; and assemble, to assemble.

Integral to dance and particularly ballet are the concepts of balance and counterbalance, pull-up and turnout, weight distribution and alignment, including shoulders down, hips square, legs turned out, and chest lifted.

In ballet, there are many different dance forms and techniques that a dancer can follow. Three of the larger ones are the Cecchetti, Russian Vaganova, and Royal Academy of Dance, (RAD), programs. They all have different levels for the dancers starting from the beginner to the advanced. Each of the dance form has its set of advantages and disadvantages. The Cecchetti Society developed the Cecchetti technique from the teachings of the great ballet master Enrico Cecchetti. It is a full syllabus designed to train dancers for professional work. One notable emphasis in the Cecchetti syllabus is that the arms flow and blend from position to position more than any other technique. The Cecchetti technique is the core of the program at the National Ballet School of Canada. The Russian Vaganova technique is named after and derived from the teachings of Agrippina Vaganova, who was the artistic director of the Kirov Ballet for many years. In the Vaganova method, the dancers bring attention to their hands. The hands do not flow invisibly from one position to the next, as in the Cecchetti method. In the Vaganova ballet form the hands are left behind and turn at the last moment. This is how the "flapping" look, that many dancers make with their hands, is created. In the Vaganova method, the exercises for each level are not formally established as in the RAD method. Each teacher choreographs his own class according to specialized guidelines and the students dance that class in their examinations. The Vaganova method forms the core of the program at the Royal Winnipeg Ballet School. The RAD syllabus is very common. It is well suited to dance classes in community dance schools where the students usually do no more than an average of one class per day. If you go to the ballet school in your community, there is a good chance you will be taught using the RAD method. The American School of Ballet teaches the Balanchine method. Created by George Balanchine in the American School of Ballet, the Balanchine method allows dancers to dance Balanchine's choreography much more easily than other dancers can. In the Balanchine method the hands are held differently again from any of the other forms.