TOOL 4

THE THREE STAGES OF FUNDAMENTAL MOTOR SKILL ACQUISITION

OBJECTIVES

- Understand the stages of motor skill acquisition in children ages 0 to 9 years.
- Assess the motor skills of the group as a whole in order to implement opportunities for active play that will develop the children's motor skills.
- Offer age-appropriate activities and materials.

INSTRUCTIONS

- Generally observe the stages in which children in the group acquire fundamental motor skills.
- Create a favourable environment and opportunities for play adapted to the children's stages of development based on your observations.

Refer to the following tools:*

Tool No. 4a - Fundamental Motor Skill Development From 0 to 9 Years

Tool No. 4b - Characteristics of the Three Stages of Fundamental Motor Skill Acquisition

Tool No. 4c - Table of Fundamental Motor Skills

*The tools provided are not intended to help diagnose motor skill development or to compare children within the same group.

Recommendations for supporting children as they develop:

- Suggest activities based on the children's stages of motor skill development.
- Provide opportunities for the children to pratice their skills (e.g., let them throw, jump, kick, hop on one foot, do forward and backward rolls).
- Offer a variety of stimulating and age-appropriate materials (e.g., balls of different sizes and textures).
- Provide an opportunity for the children to initiate active play on a daily basis.

FUNDAMENTAL MOTOR SKILL DEVELOPMENT FROM 0 TO 9 YEARS

The Three Stages of Motor Skill Acquisition from 0 to 9 years

Blue: Initial stage **Green:** Intermediate stage **Red:** Final stage

THE 3 STAGES

Initial: emergence of primary motor skills (muscle tone, posture, balance, grasping, sitting, walking)

Intermediate: acquisition and adaptation of fundamental motor skills

Final: perfection of previously acquired motors skills through improved motor performance

Source: PAOLETTI, R. (1999). *L'éducation et motricité de l'enfant de deux à huit ans.* Québec: Gaétan Morin Éditeur.

TOOL 4b

CHARACTERISTICS OF THE THREE STAGES OF FUNDAMENTAL MOTOR SKILL ACQUISITION

Regardless of the type of motor activity, the way children perform the activity evolves over time. Stages in the control of these different activities can be divided into three phases: initial manifestations of the behaviour, intermediate manifestations and final characteristics (nearing those of adult behaviours). At the beginning of elementary school, children are already able to master most motor patterns.

WALKING

Children usually learn to walk between the ages of 12 and 18 months. Beginning at age four, the child begins to walk like an adult (stride length increases as the child grows and the legs get longer). Therefore, it is not necessary to develop specific motor education sessions to improve it.

Initial stage: 0 to 12 months
Children walk with arms extended away from the body, legs spread apart and feet flat on the ground.

Intermediate stage: 1 to 2 years
Arms are beside the body, and legs are closer together. Children walk up and down stairs, one step at a time. They can walk backgrounds and sideways.

Final stage: 2 to 4 years
Walking is smooth and arms are balanced on each side of the body, opposite the legs.

RUNNING

Children begin to run at about age two. Running differs from walking in that it has a flight phase during which both feet are off the ground. After the age of four, children have better control over running movements and changes in direction (they need less space to turn); they push off more with their back leg while leaning forward, and their arms help to propel and stabilize the body.

Initial stage: 2 to 3 years
Children begin to trot. This is the beginning of running, with a very short flight phase.

Intermediate stage: 3 to 6 years
Children run more gracefully, and their strides are longer.

Final stage: 6 to 9 years
Children run like adults. Their movements are coordinated. They are able to start, stop and change direction.

JUMPING

Children start jumping at about age three. They can jump approximately 6 cm at age five and 9 cm at age six. They can use two legs (long jump or vertical jump with feet together) or jump on one leg (vertical jump, long jump or hopping). Hopping on one leg requires increased strength and balance. They are able to execute two or three consecutive hops by age three or four, and 10 consecutive hops by age five. At this point they are able to play hopscotch.

STANDING LONG JUMP

Initial stage: 3 to 4 years
Push-off with legs is limited. The jump is directed upward more than forward.

Intermediate stage: 4 to 5 years
Arms are involved to a small degree. Push-off with legs is stronger.

Final stage: 5 to 7 years
Arms are well balanced on each side of the body to increase power and push-off with legs.

VERTICAL JUMP WITH ARM SWING

Initial stage: 2 to 3 years
Children begin to jump and lift their feet off the ground. They can jump on one foot.

Intermediate stage: 4 to 5 years
Children lift both feet off the ground. Their jump is strong but not very well coordinated with their arms.

Final stage: 5 to 6 years
Children jump higher. Their arms and legs are well coordinated and provide more power. They begin to jump rope.

HOPPING

MOVING FROM ONE PLACE TO ANOTHER BY JUMPING ON ONE LEG.

Initial stage: 3 to 4 years
Arms are outstretched very high on each side of the body for balance. They can keep their balance for one to three hops.

Intermediate stage: 4 to 6 years
Arms move from bottom to top and the hops are quicker. They can keep their balance for about 10 hops.

Final stage: 6 to 7 years
Arms help to propel the body, as does the raised leg. Children have greater control over take-off and landing. They can hop over longer distances.

OVERHAND THROW

The development of throwing skills provides an excellent illustration of the stages of motor skill acquisition.

Initial stage: 2 to 3 years
Children throw an object using their arms only. At this stage, they still throw a ball using both hands and with their entire body. When they begin to throw with one hand, the elbow is bent, and the arm provides the only power. The legs are not involved in the throw.

Intermediate stage: 4 to 6 years
Children move their bodies more to propel the throw by turning toward the side of the throwing arm. They move their foot forward and, at the end of the throw, put their weight on the leg that is on the same side as the throwing arm. They begin to throw toward a target.

Final stage: 7 to 9 years
Large, well-coordinated body movements provide more power and accuracy to the throw. In the last stage, they advance the foot opposite the throwing arm at the end of the throw to strongly propel the object. Training at this stage enables earlier arm-leg opposition.

CATCHING

At about age three, the ball often goes right through their arms as they bring their arms together too late.

Initial stage: 2 to 4 years
Feet are on the ground and arms are outstretched. Arms close after the ball touches the chest. At around the age of four, they fold the arms to trap the ball against their chest. They catch with their entire body.

Intermediate stage: 4 to 6 years
Feet are on the ground, palms facing as they prepare to catch the ball. Children are able to catch smaller balls. At around age five, children cup their hands to catch a ball that has bounced on the ground.

Final stage: 6 to 7 years
Eyes follow the ball and children move according to its trajectory, for example, to make sure the ball doesn't hit them. Hands are well coordinated when catching.

FORWARD ROLL

Children can begin to do a forward roll around the age of three or four. They often roll toward the side instead of the front.

Initial stage: 3 to 4 years
Weak push off with arms and legs. Side roll is frequent. Head is often extended instead of flexed. The finish position is stretched out on the ground.

Intermediate stage: 5 to 6 years
Small push-off with arms and legs. They begin to place the back of the head on the ground. The finish position is with legs outstretched in front because their abdominal muscles are still too weak.

Final stage: 7 to 9 years
Chin is tucked in for maximum head flexion. The push-off with arms and legs is strong, allowing them to rise without placing their hands to the ground. Legs are bent at the finish, which helps them to rise with arms outstretched toward the front.

KICKING A STATIONARY BALL

Children quickly learn to kick a ball.

Initial stage: 2 to 3 years
Children use very little leg swing. They kick a stationary ball by simply stepping forward. The leg pushes the ball rather than actually kicking it.

Intermediate stage: 4 to 6 years
Children use greater leg swing by bringing the kicking leg further back. The leg continues moving upward after striking the ball.

Final stage: 7 to 9 years
Powerful swing of the kicking leg to the back, and just as powerful toward the front. Continued motion of the leg upward after kicking. The leg swing is more precise, and the kick is stronger.

DROP KICK

Children usually begin to drop kick a ball around the age of three. Kicking is more efficient at age five to six, with better balance as well as increased swing of the kicking leg.

Initial stage: 3 to 5 years
The arms throw the ball upward, the leg touches the ball with very little swing beforehand. The ball often touches the knee instead of the foot.

Intermediate stage: 6 to 7 years
Hands hold the ball and throw it forward and upward with greater accuracy. There is greater swing of the kicking leg.

Final stage: 7 to 9 years
The child throws the ball forward using the opposite hand from the kicking leg. The leg swing is very strong, and the child hops slightly after kicking.

DRIBBLING

When children start dribbling a ball, their hand begins by following the ball's motion instead of anticipating it. As a result, during their first attempts, their hand touches the ball as it descends and does not drive it downward. The ball bounces once and then rolls away.

Initial stage: 3 to 4 years
The body tilts forward and rises and falls with the ball. Feet are firm on the ground. Children often use both hands. Their hands follow the ball's descent instead of striking it.

Intermediate stage: 5 to 6 years
The body tilts forward. Feet are firm on the ground. Arms are extended forward. Children strike the ball using the hand and wrist. They can strike the ball several consecutive times.

Final stage: 7 to 9 years
The body tilts forward slightly. Arms are slightly bent. The body's movements are coordinated with the ball's motion. Contact with the ball occurs during the upward phase, and they push with their fingers instead of striking the ball. Later, peripheral vision and proprioception will take over from central vision in controlling this activity.

STRIKING AN OBJECT USING A TOOL

Striking an object (puck, ball, shuttlecock) using a tool (racquet, bat) is even more complex due to the addition of an external element modifying the "length" of the child's arm. Sometimes children allow the shuttlecock fall on the hand holding the racquet instead of on the strings. In this case they should either back up the elbow of the arm holding the racquet or extend the arm holding the shuttlecock so that both the shuttlecock and the strings follow the same trajectory.

Initial stage: 2 to 3 years
At the beginning, children often use both hands to hold the object. They can use one hand to strike a ball that is suspended or thrown at waist level.

Intermediate stage: 4 to 6 years
They strike a ball by sweeping their arms laterally (front-back). Feet are firm on the ground and the trunk does not rotate.

Final stage: 7 to 9 years
The trunk rotates and weight is transferred from the back leg to the front leg. The lateral sweeping motion with large arm movements continues after contact with the object. Children anticipate the ball's movement by taking the same information into consideration: they prepare to strike based on the ball's trajectory.

At about age five, several motor skills are already well developed: children can climb and go down stairs with alternating feet, hop in place or moving forward, stop and turn quickly, jump farther and hop on one leg, catch a ball and throw it several metres.

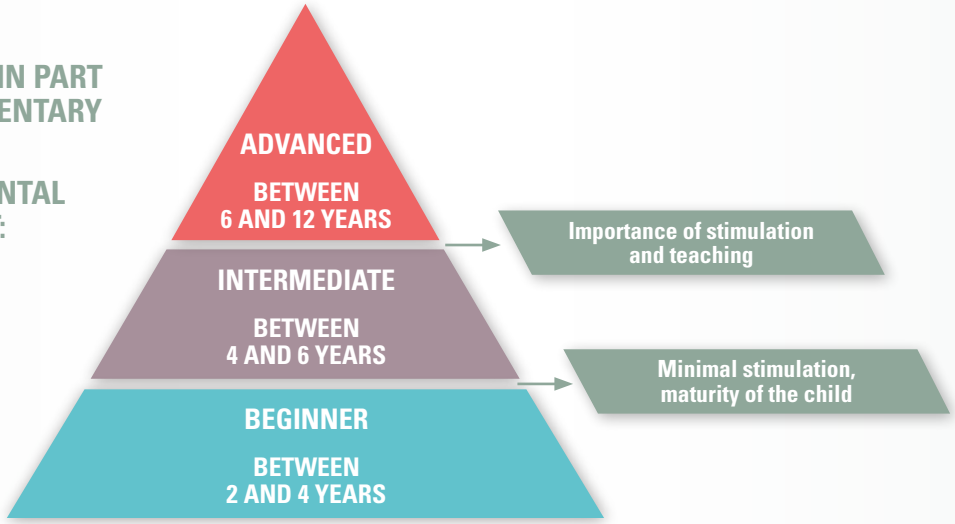
Sources: PAOLETTI, R. (1999). *L'éducation et motricité de l'enfant de deux à huit ans.* Québec: Gaétan Morin Éditeur;
RIGAL, R. (2010). *L'éducation motrice et l'éducation psychomotrice au préscolaire et au primaire.* Québec: Presses de l'Université du Québec.

TOOL 4c

TABLE OF FUNDAMENTAL MOTOR SKILLS

NATURAL ACTIONS ARISING IN PART FROM REFLEXES AND RUDIMENTARY MOVEMENTS.

THREE STAGES OF FUNDAMENTAL MOTOR SKILL DEVELOPMENT:



Each fundamental motor skill has characteristic developmental features at each of the three stages.

The literature refers to 20 or so skills divided into three categories.

Fundamental motor skills	Stabilization	Locomotion	Manipulation
Balancing on one foot	✓		
Crawling		✓	
Climbing		✓	
Walking (on the ground and on objects)		✓	
Galloping		✓	
Taking giant steps		✓	
Leaping		✓	
Dodging		✓	
Running		✓	
Hopping on one foot		✓	
Standing long jump		✓	
Vertical jump with no arm swing		✓	
Jumping from a height		✓	
Side steps		✓	
Forward roll		✓	
Side role		✓	
Overhand throw			✓
Underhand throw			✓
Catching with both hands			✓
Stationary dribbling			✓
Kicking with leg swing			✓
Kicking a moving object			✓
Striking an object using hands or a racquet			✓
Striking an object using a tool			✓

Source: BEAULIEU, J. (2011, October). *L'éducation motrice et les habiletés motrices fondamentales en EPS*. Paper presented at the FÉÉPEQ/RSEQ Convention in Sherbrooke, QC.