



Movement (EMI) Scoring Definitions

When scoring the EMI, you will record a child's gross motor behaviors as they occur during the Early Movement Indicator (EMI) assessment. The EMI is a direct assessment of child skills elicited by an adult play partner during a 6-minute play session. Discrete key element behaviors are scored as individual episodes. These key element behaviors include Transitional Movements (TM), Grounded Locomotion (GL), Vertical Locomotion (VL), Throwing/Rolling (TR), and Catching/Trapping (CT). While a child may engage in additional types of movement, these are the skills not measured for the EMI; for example, kicks are not measured for the EMI.

- "Partner" in these definitions refers to the adult playing with the child during the EMI assessment.
- "Assessor" refers to the person in charge of the assessment and recording of the child's behavior. If video recording the EMI assessment, the assessor may also be the adult play partner.
- "Episode" in these definitions refers to an incidence of a behavior. An episode is counted with a tally.

Each element is scored separately as it occurs in a situation. All elements are scored using a frequency count. Each instance of a key element behavior is counted and recorded with a tally mark in the appropriate cell on the recording sheet. Recording sheets have different sections for each key element for each minute of the assessment. Key element behaviors can be summed into a Total Movement score.

Definitions of Movement Key Elements

Transitional Movements (TM):

Transitional Movements are motions used by a child to move from one distinct stable posture to another. Some examples include transitioning from lying on back to lying on stomach, sitting to kneeling, stooping to standing. An episode begins when a child begins moving from a stable position to a new position. The episode ends when the child has regained a new stable position or begins locomotion.

Includes:	Excludes:
<ul style="list-style-type: none"> ● Rolling to stomach from back ● Rolling to back from stomach ● Rolling to side from back or stomach ● Moving in and out of sitting position ● Standing up ● Kneeling down on knees ● Stooping (bending at knees or waist) ● Rocking back and forth in crawling position (counts as one episode unless child changes into a new position; e.g., 2 episodes would be counted when the child is in a crawl position and rocks back and forth, then sits down and then moves back to the crawl position and rocks again) ● Bouncing up and down by bending knees, in a standing position (counts as one episode unless child changes into a new position; e.g., 2 episodes would be counted when the child holds onto table and bounces knees while standing, then stoops down and stands again to bounce) ● Child lying on stomach holding self up on arms (either forearms or extended arms) for at least 3 seconds ● Movement within a stable posture – a child shifts weight in a very obvious way to lean forward or sideways from a stable position into another stable position. 	<ul style="list-style-type: none"> ● Child lifting head up while on his/her stomach (for a behavior to count as a transitional movement, the child must lift up on arms) ● Adult helps child roll over ● Child attempts to roll over and not making it all the way over, and ends up in original position ● Adult helps child move to sitting, kneeling, stooping, or standing ● Bouncing with feet (not bending knees but using ankles) ● Falling from vertical or grounded locomotion (movements transitioning the child out of the fallen position would be counted) ● Rolling over and over repeatedly across the floor (this is scored as grounded locomotion) ● Any movement coded under locomotion ● Movement that involves stepping with knees or feet. ● Hugs ● A seated child stretches arm and trunk to reach out for a ball that is far. Essentially, to accomplish this, a child is still within the realm of a seated position, so not a TM ● Child is leaning on one hand, and leans on other hand; child is kneeling and leans to the side to push a ball to a partner

Grounded Locomotion (GL):

Grounded Locomotion is horizontal to the ground, and does not use upright postures when moving. It is movement that propels the body forward, backward or sideways. If the child stops moving for more than 3 seconds, count any new movements as a new episode. Also, if an episode of another key skill element occurs, then the previous episode ends. For example, the child crawls on hands and knees (grounded locomotion), rises up (transitional movement), returns to hands and knees (transitional movement), and begins crawling again (grounded locomotion). Each of these episodes would count even if it all happened within a 3-second period because each one is separated by an episode of a different key skill element.

Includes:	Excludes:
<ul style="list-style-type: none"> ● Moving on belly from one location to the next, either forward, backward or sideways (pivot in prone) ● Thrusting arms forward and then subsequently flexing them in a movement that leads to a slight forward or backward movement ● Scooting by sitting on bottom and wiggling legs and bottom to move forward or backward ● Crawling, stopping, but not changing position and then continuing to crawl ● Crawling on 3 or 4 limbs (Either hands and knees or hands and feet) ● Rolling over and over across the floor (more than rolling from one position to another, e.g., rolling once from back to stomach) – counts as 1 episode. 	<ul style="list-style-type: none"> ● Lying on stomach and making swimming-like movements ● Lying on stomach and lifting up slightly on arms to view an object ● Rolling over once (this is scored as a Transitional Movement)

Vertical Locomotion (VL):

Vertical Locomotion involves movements in an upright position that transport the body forward, backward, sideways or upward from one point in space to another. If the child stops moving for more than 3 seconds, count any new movements as a new episode. If a child switches between types of vertical locomotion--walking and then jumping, for example--code only 1 VL because while the behavior changed, the key skill being demonstrated did not. When walking, running or hopping, each step or hop is not an individual vertical locomotion; the movement as a whole counts as one VL until another key skill or large enough pause prompts one episode to end and another to begin.

If an episode of another key skill element occurs, then the previous episode ends. For example, child walks (vertical locomotion), squats down (transitional movement), stands back up (transitional movement), and begins walking again (vertical locomotion). Each of these episodes would count even if they all happened within a 3-second period because each one is separated by an episode of a different key skill element.

Includes:	Excludes:
<ul style="list-style-type: none"> ● Cruising – walking while holding on to furniture for support ● Walking by alternating feet with one foot always on the floor. Walking must stop for at least 3 seconds before occurring again in order to be coded as 2 separate episodes (unless the movements are separated by a different motor behavior like a transition) ● Walking up or down stairs ● Walking sideways ● Walking while hanging on to an object such as a push walker ● Walking on knees ● Running by alternating feet with a brief period of no contact with the floor ● Jumping up when throwing a ball ● Jumping off of an object ● Jumping – taking off on one foot and landing on the same foot ● Climbing on an object, person, or apparatus in which the child moves upward alternating arms and legs (e.g., lifting self on top of a chair, using arms and legs to crawl on top) 	<ul style="list-style-type: none"> ● Cruising or walking while supported by an adult (adult hangs on to child's hands – this is not counted because the adult can adjust the level of support to help the child maintain balance and movement; however, if the child cruises hanging onto furniture, the child is the only one who has control of his/her balance and movement) ● Walking while supported by a walker in which the child sits in a seat that supports the child's weight ● Adult lifting child up on top of apparatus or furniture (even if child had been attempting to lift self up) ● Dragging legs on a surface where no discernable stepping movements are made. (This is sometimes seen when a child is supported, as in the tent and holding the netted wall. ● Kicking a ball

Throwing/Rolling (TR):

Throwing is propelling an object through the air. Rolling is pushing a circular object on the ground or floor so it rolls away from the child.

Includes:	Excludes:
<ul style="list-style-type: none"> ● Throwing an object using an over-arm, underarm, or sidearm throw ● Throwing backward ● Object does not have to hit/contact the person or object at which child was aiming ● Rolling an object toward a person, a target, or to experience the movement ● Pushing an object away from the child's body so that the object flies through the air for a short distance and/or rolls on the ground 	<ul style="list-style-type: none"> ● Bringing arm back, but dropping an object before releasing it ● Pushing at an object, but it does not move forward ● Kicking people or objects ● Hitting people ● Dropping a ball. ● Pushing over stacked blocks ● Kicking a ball or blocks

Catching/Trapping (CT):

Catching is *bringing an airborne object under control* using hands and arms. Trapping is *stopping a moving object* (moving through the air or rolling on the ground) with hands, arms, legs, body. Trapping needs to be an active movement, and not just passively allowing an object to come to a stop against the body (e.g., it would not count as an episode of trapping if the child sits on the floor as a ball rolls up against his leg; however, it would count if the child reached out to stop the ball against her leg).

Includes:	Excludes:
<ul style="list-style-type: none"> ● Catching an object with hands or arms ● Trapping it against the body (e.g., child holds out arms as a ball is thrown to the child; child traps the ball between his/her arms and chest) ● Child trapping a ball rolling along the floor with his/her legs ● Reaching for or grabbing a moving ball with one hand off the floor. 	<ul style="list-style-type: none"> ● Child holding up arms to cover face/body when a ball is thrown toward him/her ● Child picking up a ball <i>that has not been moving</i> from the floor ● Picking up a ball off the floor <i>that has come to a stop</i> after moving. This does not count even if the ball moves again slightly when the child touches it. ● Child is sitting still as a ball comes to rest/stops against his/her leg/trunk/arm.