

# Gross Motor

DOMAIN: Health and Physical Development

CLAIM: Students can demonstrate competencies in motor skills and movement patterns.

## **RATIONALE**

Piaget (1954) was one of many developmental psychologists who linked motor skill development with improvements in perceptual and cognitive development. Motor and cognitive functions tend to follow a similar timeline with intensified development between ages 5 and 10 (Gabbard, 2008). Grissmer et al. (2010) emphasize the importance of motor skill development in children. Their data analyses suggest that fine motor skills are a strong predictor of achievement. When analyzed collectively, “attention, fine motor skills, and general knowledge are much stronger overall predictors of later math, reading, and science scores than early math and reading scores alone” (Grissmer et al., 2010, p. 1008). Recent research stresses the importance of facilitating both motor and academic development as the two continue to be linked in neuroscience research. When comparing gross motor skills of age-matched children with and without learning disabilities, researchers found a specific relationship between reading and locomotor skills and mathematics and object control skills: the greater the learning delay, the poorer the motor skills (Westendorp, Hartman, Houwen, Smith & Visscher, 2011). Sibley and Etnier (2003) conducted a meta-analysis showing a positive correlation between physical activity and seven categories of cognitive performance (perceptual skills, intelligence quotient, achievement, verbal tests, mathematics tests, developmental level/academic readiness, and other) among school-aged children. Crossing the midline is an important milestone of development, reflecting integration of the bodily midlines, which allow for bilateral coordination (Stilwell, 1987). Difficulty crossing the midline has been linked to a cluster of sensory, perceptual, and motor difficulties exhibited by some children with learning exceptionalities (Ayres, 1972; Michell & Wood, 1999; Stilwell, 1987; Murata & Tan, 2009). Previous research suggests that failure of a child, between ages 3 and 4, to cross the midline could predict later potential problems in development (Michell & Wood, 1999).

## **ALIGNMENT TO NC STANDARDS**

### **NC Foundations for Early Learning and Development**

HPD-4 Children develop the large muscle control and abilities to move through and explore their environment.

### **NC Standard Course of Study (Common Core State Standards & Essential Standards)**

K.CP.2 Understand how to use performance values (kinesthetic awareness, concentration, focus, and etiquette) to enhance dance performance.

K.DM.1 Understand how to use movement skills in dance.

K.MS.1 Apply competent motor skills and movement patterns needed to perform a variety of physical activities.

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3.MS.1 Apply competent motor skills and movement patterns needed to perform a variety of physical activities.

## GROSS MOTOR DEVELOPMENT: WEIGHT DISTRIBUTION FOR WALKING

UNDERSTANDING: Children distribute their weight for walking.			
SKILLS	<b>A. Walks* on a flat foot.</b> <i>* Children may or may not walk in a straight line at this stage.</i>	<b>B. Walks by distributing weight from heel to toe with developing balance and control.</b>	<b>C. Walks by distributing weight from heel to toe evenly and demonstrates balance and control.</b>
PERFORMANCE DESCRIPTORS	When observed walking in a variety of settings (or asked to walk), Ethan walks with weight received on a flat foot as opposed to striking the ground with the heel and rolling to the toe. Ethan occasionally looks at his feet while walking and uses a wide base of support (wide distance between feet during stepping motion).	When observed walking in a variety of settings (or asked to walk), Camila walks receiving weight on the heel and rolls to toe with each stepping motion. She occasionally watches her foot placement while walking and uses a narrower base of support (smaller distance between feet during stepping motion). Camila can follow a straight line with focus and effort.	When observed walking in a variety of settings (or asked to walk), Cameron walks receiving weight on the heel and rolls to toe with each stepping motion without having to look at his feet. The base of support is narrow (small distance between feet during stepping motion). Cameron follows a straight line with minimal effort.

## GROSS MOTOR DEVELOPMENT: PATHWAYS

UNDERSTANDING: Children develop spatial awareness as they identify and use appropriate pathways to manipulate space between self and others that include a variety of directions and levels.			
SKILLS	<b>A. Navigates a path to avoid obstacles.</b>	<b>B. Navigates varying pathways while maneuvering in different directions.</b>	<b>C. Increases speed and agility while moving through varying pathways.</b>
PERFORMANCE DESCRIPTORS	In a variety of movement situations (walking, running, jumping, skipping, hopping, or creative movement), Sophia navigates a straight path followed by a curved path while proceeding from one place to another. She avoids obstacles.	In a variety of movement situations (walking, running, jumping, skipping, hopping, or creative movement), Luciana changes pathways, adjusts to different levels and force, and demonstrates balance while changing directions (e.g., runs in a zigzag pattern).	In a variety of movement situations (walking, running, jumping, skipping, hopping, or creative movement), Samuel is observed making transitions with greater speed and agility, resulting in his ability to move through varying pathways with ease.

## GROSS MOTOR DEVELOPMENT: STAIR CLIMBING

UNDERSTANDING: Children develop the ability to integrate motor skills and movement patterns to ascend and descend with ease.				
SKILLS	<b>A. Walks up and down stairs placing two feet on each step with assistance.</b>	<b>B. Walks up and down stairs placing one foot on each step (alternating gait) with assistance.</b>	<b>C. Walks up and down stairs placing one foot on each step (alternating gait) without assistance.</b>	<b>D. Moves up and down stairs with increased speed and can adjust to higher stair heights.</b>
PERFORMANCE DESCRIPTORS	Angel walks up and down the stairs and intentionally places two feet on each step while holding the rail or a hand, or using other human assistance.	Gabriel walks up and down the stairs placing one foot on each step (alternating gait) while holding a rail or a hand, or using other human assistance.	Ethan walks up and down the stairs placing one foot on each step (alternating gait) without holding a rail or a hand, or using other human assistance.	Chloe moves up and down stairs or apparatus (playground equipment, bus steps) of various heights swiftly with ease.

## RESOURCES USED

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## SITUATION: *Obstacle Cards*

	WEIGHT DISTRIBUTION FOR WALKING	PATHWAYS				
Selecting Learning Target(s)	Understanding: Children distribute their weight for walking.			Understanding: Children develop spatial awareness as they identify and use appropriate pathways to manipulate space between self and others that include a variety of directions and levels.		
Preparation	<b>A. Walks* on a flat foot. * Children may or may not walk in a straight line at this stage.</b>	<b>B. Walks by distributing weight from heel to toe with developing balance and control.</b>	<b>C. Walks by distributing weight from heel to toe evenly and demonstrates balance &amp; control.</b>	<b>A. Navigates a path to avoid obstacles.</b>	<b>B. Navigates varying pathways while maneuvering in different directions.</b>	<b>C. Increases speed and agility while moving through varying pathways.</b>
General Description	<p>The teacher sets up an outdoor game for the purpose of observing children’s gross motor skills (weight distribution for walking and navigating pathways) while integrating relevant content into the activity.** Depending on the identified learning targets, the teacher determines the skill level at which the game is played and if it is played with small groups or the whole class.</p> <p>**<u>Content Examples</u>: letter identification or sounds, names of classmates, sight words, vocabulary words, spelling words, parts of speech, punctuation, numbers, mathematical problems that address shapes, colors, math facts, etc.</p>					
Eliciting Evidence of Learning	<p>The teacher sets up the game by identifying a starting area and finish line (e.g., using ropes end to end to create a finish line) and spreads out the content cards just beyond the finish line. The students sit in a horizontal line facing the finish line at least 10 yards away.</p> <p>The teacher explains to the students that there are a number of cards with different content information on them across the finish line. The object of the game is to walk across the finish line and pick up a card. The child will look at the card, tell the teacher the name of (or answer to) what is on the card, place the card back down on the ground, and walk back to a spot with the rest of the class. After modeling the directions to the class, the teacher purposefully chooses a small group of children (2-4) to play the game based on the learning targets identified. As the children play, the teacher intentionally watches and notices how the students walk.</p> <p>Depending on the students’ needs, the teacher then places two obstacles along two different pathways, placing the first obstacle at least three yards away from where the children are sitting. The object of the game is to walk – navigating around the obstacles – across the finish line and pick a card. The child will tell the teacher the name of (or answer to) what is on the card, place the card back down on the ground, and walk back – navigating around the obstacles again. The teacher strategically calls a small group of students to begin playing the new version of the game.</p> <p>Depending on the information needed, the game may progress to the next skill:</p> <ul style="list-style-type: none"> <li>• Walking around additional obstacles</li> <li>• Hopping, jumping, skipping, or creatively moving around obstacles in the path</li> </ul> <p><u>Suggested Probes</u>:</p> <ul style="list-style-type: none"> <li>• Can you walk at a different speed?</li> <li>• Can you walk slower?</li> <li>• Can you move faster?</li> <li>• Is there a different way you can move?</li> </ul> <p><u>Probes to Avoid</u>:</p> <ul style="list-style-type: none"> <li>• Can you walk with your heel first?</li> <li>• Can you walk and avoid the obstacles?</li> </ul>					
Interpreting the Evidence	<p><b>Observation:</b> Jasmine and Acee walk the obstacle-free course to the finish line. Jasmine walks with her feet wide apart and on a flat foot. As Jasmine reaches the finish line, she picks up a card with a triangular shape on it, turns to the teacher, and correctly says, “Triangle.” Acee reaches the finish line, picks up a card with a circular shape on it, turns to the teacher, and says, “Circle.” Acee walks back to the start line using heel-to-toe weight distribution in his walk, with a smooth walking pattern without tripping or stumbling. Both children sit down with the class.</p> <ul style="list-style-type: none"> <li>• <u>Identify Learning Status on Construct Progression</u>: Jasmine: <b>A. Walks on a flat foot.</b> Acee: <b>C. Walks by distributing weight from heel to toe evenly and demonstrates balance and control.</b></li> </ul> <p><b>Observation:</b> Along the course are multiple obstacles. Jacob zigzags around the obstacles toward the finish line, without touching or knocking down any obstacles, and picks up a card with “7 X 8 = ” on it. He turns to the teacher and says, “56.” Jacob then hops back to the start line, weaving around the obstacles successfully again and sits down.</p> <ul style="list-style-type: none"> <li>• <u>Identify Learning Status on Construct Progression</u>: <b>E. Navigates varying pathways while maneuvering in different directions.</b></li> </ul>					
Adapting/ Responding to Learning Needs	Once the evidence is interpreted and the learning status is identified on the construct progression, continue to adapt and respond to the learning needs of the student, addressing the same learning target if the student hasn’t met it. If the student has met the learning target, work with the student to select a new learning target for teaching and learning.					
Observational Opportunities	There are many opportunities across the day when gross motor skills may be observed in whole group, small group, and individual settings such as: lining up; walking in line; moving in various ways within the classroom, the school, and on the playground (e.g., walking, jumping, hopping, skipping); pacing off the distance or length of an object; or participating in creative movement activities (i.e., music, dance, and drama).					