



## Crossing Midline

### Construct Progression

**DOMAIN:** Physical/Motor Development

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

*This document was developed under a grant from the U.S. Department of Education. However, the contents do not necessarily represent the policy of the Department and you should not assume endorsement by the U.S. Federal Government or the North Carolina State Board of Education.*

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### Background Information

For this progression, it may be easier to determine that a child CAN cross midline than to determine they cannot. Teacher may want to move to a situation or task for any child who does not regularly display the ability to cross midline.

Note that performance with child's dominant hand may be more fluid; however, crossing midline can be observed with either hand.

At the highest level of this progression, children will always or almost always cross midline. At this level, teachers may occasionally observe children doing things like switching hands and turning their bodies, but these behaviors are not used to avoid crossing midline

### 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 the ages of five and ten (Gabbard, 2008). Grismmer et. al. (2010) emphasize the importance of motor skill development in children. Their data analyses suggest that fine motor skills were 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” (Grismmer 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 midline which allows for bilateral coordination (Stilwel, 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 child between the ages of three and four, to cross the midline could predict later potential problems in development (Michell & Wood, 1999).

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Skills	Performance Descriptors	Example
<p><b>A. Movement is isolated to one side of the midline (the invisible line running from our head to our toes, dividing the body into left and right halves).</b></p>	<p>When observed interacting with materials, child uses right arm to pick up things on the right side of the body and/or left arm to pick up things on the left side of the body, or transfers materials from one hand to the other to avoid crossing midline</p>	<p><i>When playing a board game, Mancala uses her right hand to pick up game pieces on the right side of her body and her left hand to pick up game pieces from the left side of her body.</i></p> <p><i>When painting at an easel, Andrew begins drawing a large diagonal line from the top right hand corner using his right hand. When the line reaches his midline, he switches the paint brush to his left hand to complete the line to the bottom left hand corner.</i></p> <p><i>When writing, Zariah keeps the writing instrument in the same hand and turns her body or moves her paper to reach the opposite side of the page without crossing midline.</i></p>
<p><b>B. Inconsistently crosses midline.</b></p>	<p>When observed interacting with materials, child sometime crosses midline, but occasionally takes steps to avoid crossing midline.</p>	<p><i>When playing a board game, Aiko <b>sometimes</b> uses her left hand to pick up game pieces on the right side of her body with minimal turning the body to do so. <b>Other times</b>, Aiko turns her body or switches object to the opposite hand to avoid crossing midline.</i></p> <p><i>While painting at an easel, Henry <b>sometimes</b> paints on the right side of the paper with his left hand. <b>Other times</b>, he passes the paintbrush to the opposite hand to avoid crossing midline.</i></p> <p><i>While writing at a table, Janessa <b>sometimes</b> writes on the left side of the paper with her right hand. <b>Other times</b>, she passes the writing implement to the left hand, turns her body, or moves the paper to reach the opposite side of the page without crossing midline.</i></p>

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Skills	Performance Descriptors	Example
<b>C. Consistently crosses midline.</b>	When observed interacting with materials, child always or almost always crosses midline, but may rarely take steps to avoid crossing midline.	<p><i>While playing a board game, Luke is regularly observed crossing midline by using his right hand to pick up game pieces on the left side of the body. He rarely turns body or switches object to the opposite hand to avoid crossing midline.</i></p> <p><i>While painting at an easel, Aaliyah is regularly observed crossing midline by painting on the right side of the paper with her left hand. She rarely turns her body or switches object to the opposite hand to avoid crossing midline.</i></p> <p><i>While drawing at a table, Rafael is regularly observed crossing midline by drawing on the left side of the paper with his right hand. He rarely turns body or switches object to the opposite hand to avoid crossing midline.</i></p>

## Resources

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**Domain:** Physical/Motor Development

**Construct:** Crossing Midline

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**Domain:** Physical/Motor Development

**Construct:** Crossing Midline

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