

**Construct Progressions, Performance Descriptors,
Rationale, and Alignment to Standards
(NC Preschool Standards and NC Standard Course of Study)**

Domain

Health and Physical Development

Claim

Students can demonstrate competencies in motor skills and movement patterns.

Construct



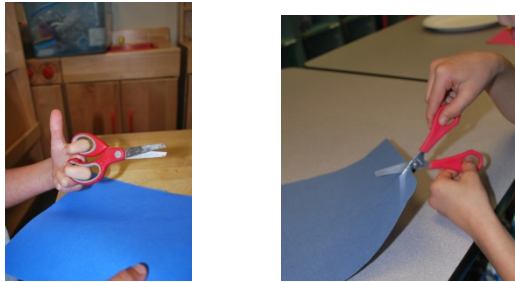
Fine Motor

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Construct: Demonstrate competencies in motor skills: Fine Motor



Fine Motor

Understanding	Skills	Performance Descriptors
Fine Motor	Grip and Manipulation	
Children develop visual motor integration. Note: Children develop perceptual skills that inform fine motor movement.	<p>A. Uses a fistful grip or palmer grasp to reach, manipulate or hold items (palmer grasp), with whole arm movement.</p> <p>Fisted grip:</p>  <p>Palmer grasp:</p> 	<p>When observed in a variety of settings, child grasps objects with entire hand, fingers pointing down or five finger grip (palmer grasp), using whole arm movement (shoulder and elbow).</p> <p>Examples: Using an object like fork, spoon, paintbrush, marker, crayon, pencil, block, counting bear, etc.</p> <p>Scissors grip: May try to use both hands, one gripping the top loop and one for the bottom loop in order to open and close. Alternately, may insert index finger in one loop and middle finger in other loop.</p> 
	<p>B. Uses thumb and fingers to manipulate objects (pincer grip), with whole arm movement and increased stability from the shoulder.</p>	<p>When observed in a variety of settings, child uses thumb and fingers to manipulate or move objects (pincer grip), with more stability in shoulder movement.</p> <p>Examples: Using an object: fork, spoon, crayon, block, dice, grape, cracker, holds a writing utensil with a tripod grip, etc.</p> <p>Self-help skills: Buttoning, zipping, snapping, etc.</p>

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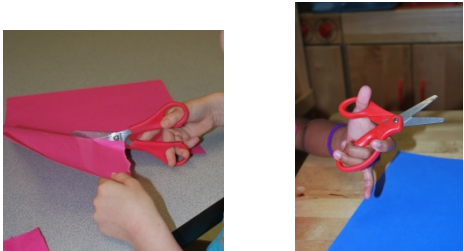
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		<p>Tripod grip:</p> 
	<p>C. Uses refined wrist and finger movement, beginning to transfer control of movement from the shoulder to the elbow.</p>	<p>When observed in a variety of settings, child uses precise finger movement (isolated control of each finger). Manipulation is controlled and stabilized from the wrist through fingers allowing for greater accuracy. (Demonstrates competency of fine motor skills).</p> <p>Examples: Writing and drawing utensils, using Lego® toys, tearing paper, picking up chips or coins, opening bottle, picking up lace of shoe.</p> <p>Self-help skills: Buttoning, zipping, snapping, etc.</p> <p>Scissors grip: Does have thumb in top loop, may have index finger or multiple fingers in the bottom loop. Elbow is away from body and elevated, whole arm movement.</p> 
	<p>D. Uses hands with minimal elbow movement and primary control from wrist and fingers.</p>	<p>When observed in a variety of settings, child uses thumb and fingers to manipulate or move objects. The wrist and fingers move together as a unit with less movement from the shoulder. When writing or drawing, fingers may appear still and close together.</p> <p>Examples: Writing and drawing utensils, using Lego® toys, tearing paper,</p>

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		<p>picking up chips or coins, opening bottle, picking up lace of shoe.</p> <p>Self-help skills: Buttoning, zipping, snapping, etc.</p> <p>Scissors grip: Correct scissors grip with thumb in top, middle finger in bottom (and maybe ring finger, too, depending on size of loop), index finger along bottom of blade for stabilization. Sometimes elbow is close to body and shoulder is beginning to be more stable.</p> <div style="display: flex; justify-content: space-around;">  </div>
	Skills	Performance Descriptors
	Hand Dominance	
	<p>A. Uses no established dominance for lead/dominant hand (switching still continues).</p>	<p>When observed in a variety of settings, child will be inconsistent on which hand is chosen for activities.</p> <p>Examples: Using drawing/writing utensils, using scissors, tossing a beanbag, using eating utensil.</p>
	<p>B. Uses established dominant hand.</p>	<p>When observed in a variety of settings, child picks up an object or writing tool, more often using the same hand.</p> <p>Examples: Throwing a ball, writing/drawing, painting/coloring, pushing a toy car along a path, scooping beans in a jar with a spoon, brushing hair and teeth.</p>
	<p>C. Performs actions involving opposing hand movements.</p>	<p>When observed in a variety of settings, child uses opposing hands in an attempt to accomplish a task. Child does not rely solely on the dominant hand. Hands are performing the same task opposite one another.</p>

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		Examples: Tearing paper, catching a ball, snapping snaps, using a Velcro® fastener, playing a drum with a stick in each hand, opening milk carton, clapping, tapping two sticks together, rolling a ball with two hands.
	D. Manipulates with dominant hand with assistance from other hand.	When observed in a variety of settings, child uses one hand for manipulation and one hand for assistance. It is a controlled action. Hands can perform independent actions. Examples: <ul style="list-style-type: none">• Holding paper still with one hand while writing or drawing with the dominant hand.• Holding and turning paper with one hand while cutting with the dominant hand.• Holding a string with one hand using the dominant hand to place a bead on a string.• Stabilizing the block tower with one hand while adding a block on top with the other hand.• Zipping UP school bags and clothing.• Screwing on jar lids.• Turning pages.
	Skills	Performance Descriptors
	Crossing Midline	
	A. Does not cross midline (the invisible line running from our head to our toes, dividing the body into left and right halves).	Child uses left hand to manipulate or pick up things on own left and right hand for things on own right. May switch between both hands. Examples: <ul style="list-style-type: none">• Painting the capital letter A, child makes a right slanted line with right hand, then passes the paintbrush to the left hand to make the left slanted line.• Picking up chips while counting to ten, child picks up the chips on the

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		right side with right hand and left side with left hand.
	B. Inconsistently crosses midline.	<p>Child crosses the midline sometimes, but on occasion manipulates objects to avoid crossing the midline.</p> <p>Examples:</p> <ul style="list-style-type: none">• During song activities like the “Macarena months,” child crosses right arm to touch left shoulder, left arm to right knee, but not consistently.• Writes/draws on a paper sometimes from left to right; other times will turn body and/or move paper to avoid crossing the midline.
	C. Consistently crosses midline.	<p>Child consistently crosses the midline during a variety of activities and tasks. Uses dominant hand for movement and manipulation around the body, not just on the side of that hand. Does not manipulate body, paper or objects in order to accomplish task without crossing the midline.</p> <p>Examples:</p> <ul style="list-style-type: none">• Picks up game pieces on the entire board with dominant hand.• Paints on all areas of large paper with dominant hand.• Brings racket across to hit a ball instead of switching to other hand.

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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 midlines which allow 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)

Alignment to Standards (NC Foundations for Early Learning & Development and the NC Standard Course of Study (Common Core & Essential Standards))

Fine motor:

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

HP-5. Children develop small muscle control and eye-hand coordination to manipulate objects and work tools.

Citations

Motor Skills

Ayers, A. (1972). Types of sensory integrative dysfunction among disabled learners. *American Journal of Occupational Therapy*, 26(1). 13-18.

Ayers, A. (1972). Improving academic scores through sensory integration. *Journal of Learning Disabilities*, 2(3), 44-52.

Bornstein, M. (Ed.). (in press). *Handbook of cross cultural developmental science: Vol.1. Moving between cultures: Cross cultural research on motor development* (1-23). New York: Psychology Press.

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- Case-Smith, J., & Pehoski, C. (1992). *Development of hand skills in the child*. Rockville, MD: American Occupational Therapy Association.
- Cermak, S. A., Quintero, E. J., & Cohen, P. M. (1980). Developmental age trends in crossing the body midline in normal children. *The American Journal of Occupational Therapy*, 34, 313–319.
- Diamond, A. (2000). Close integration of motor development and cognitive development and of the cerebellum and prefrontal cortex. *Child Development*, 71, 44-56.
- Gabbard, C.P. (2008). *Lifelong motor development* (5th ed.). San Francisco: Pearson/Benjamin Cummings.
- Gallahue, D., & Ozmun, J. (2005). *Understanding motor development: Infants, children, adolescents, adults* (6th ed.). New York, NY: McGraw Hill.
- Graham, G., Holt-Hale, S., & Parker, M. (2010). Skill themes, movement concepts, and the national standards. In G. Graham, S. Holt-Hale, & M. Parker *Children moving: A reflective approach to teaching physical education* (pp. 27-39). McGraw-Hill Higher Education. Retrieved from www.mhhe.com/graham8e
- Grissmer, D., Grimm, K., Aiyer S., Murrah, W., & Steele, J. (2010). Fine motor skills and early comprehension of the world: Two new school readiness indicators. *Developmental Psychology*, 46(5), 1008-1017.
- Haywood, K. (2009). *Life span motor development* (5th ed.). Champaign, IL: Human Kinetics.
- Horvat, M. (2011). Teaching motor, sport, and play skills, Chapter 22. In M. Horvat, L.H. Kalakian, R. Croce, & V. Dahlstrom, *Developmental/adapted physical education making ability count* (5th ed.). San Francisco, CA: Pearson/Benjamin Cummings.
- Hynes-Dusel, J. (2002). Motor development in elementary children. *Strategies: A Journal for Physical and Sport Education*, 15(3), 30-34.
- Malina, R.M. (2004). Motor development during infancy and early childhood: Overview and suggested directions for research. *International Journal of Sport and Health Science*, 2(50-66).
- McAfee, O., & Leong, D.J. (2010). *Large Muscle Development*. Retrieved from <http://www.education.com/reference/article/large-muscle-development-assessment>
- Michell, D., & Wood, N. (1999). An investigation of midline crossing in three-year old children. *Physiotherapy*, 85(11), 607-615.
- Motor development. (2005). In Cambridge Encyclopedia of Child Development. Retrieved from http://www.credreference.com/entry/cupchilddev/motor_development
- Murata, N.M., & Tan, C.A. (2009). Collaborative teaching of motor skills for preschools with developmental delays. *Early Childhood Education*, 36. 483-489.
- Piaget, J. (1954). *The construction of reality in the child*. New York: Basic Books.
- Piek, J.P., Dawson, L., Smith, L.M., & Gasson, N. (2008). The role of early fine and gross motor development on later motor and cognitive ability. *Human Movement Science*, 27, 668-681.
- Sattelmair, J., & Ratey, J. (2009). Physically active play and cognition an academic matter. *American Journal of Play*, (winter), 366-374.
- Sibley, B.A., & Etnier, J.L. (2003). The relationship between physical activity and cognition in children: A meta-analysis. *Pediatric Exercise Science*, 15, 243-256.
- Stilwell, J.M. (1987). The development of manual midline crossing in 2- to 6-year-old children. *The American Journal of Occupational Therapy*, 41(12), 783-789.

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Tan, N.M., Tan, C.A. (2009). Collaborative teaching of motor skills for preschools with developmental delays. *Early Childhood Education, 36*, 483-489.

Viholainen, H., Ahonen, T., Lyytinen, P., Cantell, M., LicSSc, A.T. and Lyytinen, H. (2006), Early motor development and later language and reading skills in children at risk of familial dyslexia. *Developmental Medicine & Child Neurology, 48*, 367–373. doi: 10.1017/S001216220600079X

Westendorp, M., Hartman, E., Houwen, S., Smith, J., & Visscher, C. (2011). The relationship between gross motor skills and academic achievement in children with learning disabilities. *Research in Developmental Disabilities, 32*, 2773-2779.

Williams, H., & Monsma, E. (2004). Assessment of gross motor development in preschool children. In B. Bracken (Ed.), *The psychoeducational assessment of preschool children* (3rd ed.) (pp.397-431). Mahwah, NJ: Lawrence Erlbaum.