

APPENDIX SI. Contents and brief descriptions of hand skill items and activity items in the Assessment of Children's Hand Skills

Hand Skill Items

- Item 1: Manual gesture refers to using arm-hand actions as a means of communication, to demonstrate the meaning of a thought, to express an emotion, or to emphasize an idea, feeling, or attitude.
- Item 2: Body contact hand skills refer to using arm-hand actions that involve body contact to meet functional needs, such as self-care and maintaining stability.
- Item 3: Reaching refers to extending and/or flexing the arm and hand outward and/or inward for the purpose of grasping objects with the hand.
- Item 4: Turning refers to using the arm, wrist, and hand to rotate, turn, or bend an object/tool.
- Item 5: Carrying refers to taking or transporting an object from one place to another using the arm and hand.
- Item 6: Throwing refers to using the arm and hand to propel the object with force through the air.
- Item 7: Catching refers to using the arm and hand to control a moving object in order to bring the object to a stop and hold it (Note: this Catching item has been eliminated from the current version of the ACHS).
- Item 8: Moving refers to moving or bringing an object towards or away from oneself along a supporting surface by using the arm and hand.
- Item 9: Stabilizing refers to using the arm and hand to secure an object on a surface or against the body by putting the arm/hand on the top of the object, by using the arm as a support on or beside the object, or by using the arm/hand to grasp and stabilize the object.
- Item 10: Grasping refers to using the hand and fingers to attain an object.
- Item 11: Holding refers to using the hand and fingers to hold an object to complete a function.
- Item 12: In-hand manipulating refers to using one hand and his/her fingers to adjust or move an object for more effective position after the object has been grasped or picked up.
- Item 13: Releasing refers to using the hand and fingers to let go or set an object free.
- Item 14: Isolated finger movement refers to using isolated/discrete finger movements to explore and engage with an object.
- Item 15: Transferring refers to handing over an individual object from one hand to the other.
- Item 16: Using both hands simultaneously refers to using two hands to make the same movement in unison or manipulate objects simultaneously with the same movements.
- Item 17: Using both hands cooperatively refers to using two hands working together to make cooperative, but discrete movements.
- Item 18: Accuracy refers to using precise arm/hand movements without deviation of targets and movement direction, when interacting with task objects.
- Item 19: Pace refers to using appropriate rate, tempo, and sequence of arm/hand movements, without disruption, slowness or uneven pace/rhythm, throughout the steps of the entire task.
- Item 20: Movement quality refers to using arm/hand movements with sufficient force exerted, e.g. the hand skill movement should be smooth.

Activity Items

Leisure and Play domain

- Item 1: Construction (blocks)
The activity involves manipulating blocks (such as getting the blocks from a bag/container, reaching for the blocks, grasping the blocks, transferring the blocks hand to hand, tapping the blocks, turning the blocks over, and placing the blocks back in the bag/container) and building various shapes (such as a tower, wall, train, bridge, pyramid, robot, house, mountain, rocket, or airplane).
- Item 2: Puzzle
The activity involves opening a box containing puzzle pieces, picking up the puzzle pieces, trying to insert, fit, rotate, and put the puzzle pieces together, taking the puzzle pieces apart, and putting the puzzle pieces back in the box. The puzzle can be a jigsaw or insert puzzle (such as a shape box).
- Item 3: Stringing beads
The activity involves getting a string and beads from a bag/box, manipulating the string and beads, stringing/lacing the beads onto the string to make a necklace (if applicable), and putting the string and beads back in the bag/box. The beads could include different sizes and shapes (such as cylindrical, square, and circular).
- Item 4: Catching, throwing, & hitting/batting
The activity involves grasping objects (e.g. soft ball, dodge ball, or bean bag) from a box/bag, carrying the objects, throwing the objects to another person who is ready to hit/bat the objects using a plastic bat/paddle, and catching the objects thrown by others. The person can also assume the role as a hitter/batter who grasps the bat/paddle. The activity should involve putting the objects back in the box/bag.
- Item 5: Card game
The activity involves getting card game items/materials from a box, dealing, sorting, turning, and manipulating the card game items/materials, playing card games with others, and putting the card game items/materials back in the box. For younger children, the activity may involve searching for specific cards such as colours, animals, or shapes by following others' instructions. For older children, the activity may involve playing formal card games, e.g. matching, sequencing, and other more formal games.
- Item 6: Playdough/clay
The activity involves getting playdough or clay from a bag/container, grasping the playdough/clay, separating the playdough/clay into pieces, and making simple shapes (e.g. a ball) or complicated shapes and objects (e.g. a triangle, dog, or a person's face). Children may use either their hands or the tools (such as a ruler, plastic knife, cookie cutter, or rolling pin) to mould, roll out, flatten, shape, or cut the playdough/clay.
- Item 7: Folding paper
This activity involves getting several sheets of paper, handling/manipulating the sheets of paper, and then folding a sheet of paper in half unevenly (e.g. the edges of the sheet of paper do not have to meet) for younger children. For older children, the activity involves getting several sheets of paper and making more complex shapes (e.g. triangle or square), objects (e.g. airplane), or animals (e.g. bird or fish) by folding and tearing the sheets of paper.
- Item 8: Handling money
The activity involves getting paper money/coins from a wallet/bag/purse, grasping, counting, stacking, sorting, and turning coins/money over, and putting the coins/money back in the wallet/bag/purse. Younger children may handle the coins and put the coins in or take the coins out of a cup/container, such as a money bank.

School/Education domain

Item 1: Turning book

The activity involves getting a book from a bookcase/drawer/table, lifting and carrying the book, opening the book, turning the pages of the book, closing the book, and putting the book back in the original place.

Item 2: Drawing and/or colouring

The activity involves getting a sheet of paper/card and a marker/texta/crayon from a box/case, removing the cap/lid of the marker/texta, using the marker/texta/crayon to draw a picture (such as shapes, people, animals, toys, etc.) and/or to colour the drawn picture, putting the cap/lid on the marker/texta, and putting the marker/texta/crayon back in its box/case.

Item 3: Writing & copying

The activity involves getting a sheet of paper, writing instrument (e.g. a pen or pencil), and an eraser from a box/case, sharpening the pencil (if necessary), using the writing instrument to copy (such as joining pictures with lines, tracing, connecting dots, and circling responses) and write a number, letter, word, sentence, or paragraph, using the eraser to correct mistakes, and putting the writing instrument and eraser back in the box/case.

Item 4: Cutting

The activity involves getting a sheet of paper (or scrapbook) and a pair of scissors from a box/case, using the scissors to cut along a short straight line, curved line, circle, or square or to cut out specific pictures from newspapers/magazines, and putting the scissors back in the box/case.

Item 5: Pasting

The activity involves getting a sheet of paper (or scrapbook) and a gluestick, taking the lid off the gluestick, rubbing the gluestick on the sheet of paper (or scrapbook page), placing pictures on the sheet of paper (or scrapbook page) to glue them, securing the picture on the sheet of paper by pressing it down on the page, and putting the lid back on the gluestick.

Item 6: Using computer

The activity involves turning a computer on, using a mouse to play computer games, open/close computer files, watch video/picture, or surf the internet, using a keyboard to type words, and then turning the computer off.

Item 7: School tool use (ruler)

The activity involves getting a sheet of paper, writing instrument (e.g. a pen or pencil), and a ruler from a box/case, using the writing instrument and ruler to draw a straight line, connect dots, and/or deal with science/math quizzes (e.g. length measurement of certain objects), and putting the writing instrument and the ruler back in the box/case.

Item 8: Putting on backpack

The activity involves getting a backpack, placing school materials (e.g. books, pencil case, or work book) into the backpack, zipping up the zipper of the backpack, and putting on the backpack.

Activity of Daily Living domain

Item 1: Drinking

The activity involves getting a plastic bottle, unscrewing/screwing the lid of the bottle, pouring the water in a glass/cup, placing the bottle on a flat surface, and lifting the glass/cup to drink from it. The bottle may contain water, milk, lemonade, soft drink, or juice.

Item 2: Eating

The activity involves eating with utensils, such as a spoon, fork, knife, or chopsticks for eating from a plate/bowl. The activity may also involve picking up, peeling, and eating a piece of fruit (e.g. banana or orange), or getting, opening, unwrapping, and eating a snack (e.g. a candy/sweet, a sealed bag of chips, or biscuits/cookies).

Item 3: Dressing upper body

The activity involves getting clothes from a drawer/robe/closet, unfolding the clothes, putting on/pulling off the clothes (such as jacket, jumper, sweater, or shirt with fasteners), and fastening the fasteners (e.g. zip, snap, or button). The activity only includes upper body dressing.

Item 4: Putting on socks and shoes

The activity involves getting socks and shoes, putting on the socks, putting on the shoes, and tying the shoelaces/closing the Velcro straps.

Item 5: Washing hands

The activity involves turning on a tap, getting the soap (if applicable), lathering up the hands with the soap, putting the soap back, washing the hands with the soap, rinsing the soap off the hands with the water, turning off the tap, and drying the hands with a towel.

Item 6: Brushing teeth

The activity involves getting a toothpaste tube and a toothbrush (or electric toothbrush), opening/unscrewing the cap of the toothpaste tube, squeezing the toothpaste onto the toothbrush (or electric toothbrush), putting the cap back on the toothpaste tube, holding the toothbrush (or electric toothbrush), and brushing teeth. The activity may also involve the procedures of pouring water into a cup by turning on a tap, rinsing the mouth with water from the cup, and washing the toothbrush (or electric toothbrush).
