

Kinesthetic Awareness

KINESTHETIC AWARENESS

Definition

Kinesthesia has been described as the “sixth sense.” It refers to the information received from sensory receptors in the joints, muscles, and skin that tells us about the position and movement of our limbs (McCloskey 1978). Kinesthetic awareness refers to the awareness (without vision) of where the body parts are in space and the position, force, and extent of their movement.

Development

Kinesthetic awareness improves steadily with age, as can be seen in the developmental progression of gross and fine muscle activity. Children learn to walk and run without bumping into things; to reach and grasp with increasing accuracy, even when not looking; and to carry out complex movements without visual monitoring (for example, playing baseball, which requires visual monitoring of the ball’s movement while the positioning and swinging of the bat are directed kinesthetically).

Kinesthetic abilities develop at a slower rate than visual and auditory abilities, and they vary widely among young children. Laszlo and Bairstow (1985) report that when tested with their test of kinesthetic sensitivity, one-third of the children in the six- and seven-year-old age groups showed such a low level of kinesthetic ability that learning and performance of tasks such as printing letters and numbers were hindered. This suggests that many children enter school and learn to write without the kinesthetic readiness skills required for paper-pencil skills. As any gym teacher, parent, or recess monitor can testify, children at this age have a tendency to “bounce off the walls and off each other.” This is partially due to lack of awareness of where their body parts are and how they are moving.

In kindergarten and first grade, children are beginning to form connections in their minds about how certain movements feel, but they rely heavily on visual information and conscious decisions. They are just beginning to learn the desired grip pattern to hold a writing implement, and often they readjust their grip when it doesn’t “look right.” Writing pressure is often heavy because excessive force and larger muscle groups are used for moving the writing implement.

By the end of first or beginning of second grade, most children rely more on internal (kinesthetic) feedback so that writing speed accelerates and copying becomes easier. Children learn to position the fingers for grip, move the fingers to make letters, and apply the right amount of pressure on the pencil, using mostly internal (kinesthetic) cues. Vision is then used for fine corrections and spatial placement (writing between lines, spacing, and so on).

During the fourth through seventh grades, motor patterns for letter and number formations are becoming firmly established and writing becomes automatic. Grip, force, and movements are directed kinesthetically and automatically so conscious and visual attention can be focused on the written content.

Difficulty with Kinesthetic Awareness

Levine (1987) lists poor kinesthetic feedback as one of the most common contributing factors to developmental output failure (inability to produce written work that matches the expectations for the child's age or grade level).

Weak kinesthetic awareness can be the result of a number of causes. Developmental variation among individuals accounts for many children with weak kinesthetic abilities, especially in the early grades. These children, who are developing normally but more slowly than many of their peers, might appear awkward in large muscle activities and pre-handwriting or handwriting exercises. They often develop the ability to guide movement visually, and they can complete mazes and other visually-guided activities well. Some older children continue to rely on visual guidance for writing due to habit, which interferes with the development of more efficient kinesthetic guidance and automaticity.

Children with disorders of attention and learning have difficulty focusing on and integrating kinesthetic and other sensory information and using it for well-controlled motor responses. Children with tone disorders also may have difficulty with kinesthetic awareness, due to limited movement or abnormal sensory input or feedback.

Difficulty with kinesthetic awareness can be seen in activities that require controlled use of body parts without visual monitoring. Children with weak kinesthetic skills often develop good visual perceptual skills and achieve higher than average scores on tests of visual perception, probably because they rely heavily upon that sensory modality. Parents and teachers are sometimes perplexed because these children have difficulty with handwriting, yet are often good at visually-guided activities such as putting together model airplanes, tracing over lines and shapes, and completing mazes.

Although writing may be legible, it is usually accomplished slowly and mechanically and requires a great deal of attention as the child visually guides movement of the pencil. Many children with weak kinesthetic abilities use awkward grip patterns in an attempt to compensate or because they have difficulty feeling and maintaining the correct grip position. Sometimes this occurs only during handwriting, while the mature tripod grip is used for drawing or tracing.

Pencil pressure is often poorly regulated. The child might have difficulty judging the correct pressure to use, or might create more friction by using excessive pressure to increase kinesthetic sensory input.

Weak abilities are often seen in gross motor activities that are difficult to guide visually, such as dancing, gymnastics, and running (especially for younger children).

Beneficial Activities

In normally developing children, kinesthetic discrimination can be improved with practice and with instructions regarding strategies for completing the particular task (Laszlo and Bairstow 1983; Corlett 1985). This kind of activity is helpful for the child who enters school with weak kinesthetic readiness skills. Although it is not clear whether kinesthetic activities will improve fine motor skills of children who have attentional or learning disorders, these activities have been incorporated into a number of highly regarded special education and therapeutic programs that are designed to improve handwriting.

Activities to improve kinesthetic awareness focus the child's attention on how different positions and movements of body parts feel. These activities require judgments of force of limb movement, limb position, and change in limb position without the use of vision. Helpful activities stimulate the child's "feeling" of movement, integrate kinesthetic and visual information, and require progressively finer kinesthetic judgments.

For classroom and home purposes, it is probably most practical to concentrate on the kinesthetic aspects of the motor tasks which you wish to improve, rather than on a large variety of kinesthetic activities that may or may not result in improvements in classroom performance. Classroom activities that often can be improved are grip positioning, pencil pressure, control of pencil stroke length or direction, and control of letter size.

Compensatory Strategies

To minimize the effects of weak kinesthetic skills:

- Provide ways for the child to make force, spatial, and position judgments based on visual information (for example, provide lined or graph paper).
- Increase touch or kinesthetic input (for example, have child use writing implements that provide increased resistance on the writing surface, pencil grippers, and so on).
- Encourage activities that can be monitored visually and do not require complex movement patterns which the child is unable to see.
- Cut down on written requirements.

References

- Corlett, J. T. 1985. Practice and instruction effects on short-term motor memory results of children. *Journal of Human Movement Studies* 11:299-304.
- Laszlo, J. I., and P. J. Bairstow. 1983. Kinaesthesia: Its measurement, training and relationship to motor control. *Quarterly Journal of Experimental Psychology* 35A:411-421.

_____. 1985. *Test of kinaesthetic sensitivity*. Willetton, Western Australia: Senkit Pty Ltd.

Levine, M. D. 1987. *Developmental variation and learning disorders*. Cambridge, MA: Educators Publishing Service, Inc.

McCloskey, D. I. 1978. Kinesthetic sensibility. *Physiological Reviews* 58(4):763-819.

Child's Name _____

Date _____

KINESTHETIC AWARENESS
Classroom and Individual Practice

AWARENESS ACTIVITIES FOR FINGERS AND HANDS

Purpose

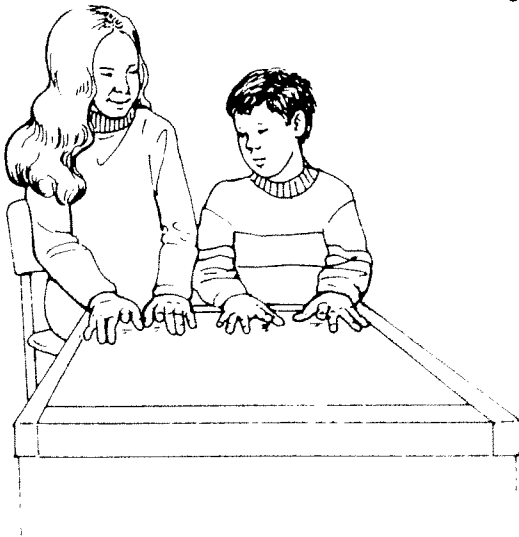
To improve awareness of position and movement of arms, hands, and fingers

Position

Child sits with hands on table. Adult sits next to child's preferred side, with hands in the same position.

Procedure

1. Adult moves arms, hands, and fingers into a new position (lifts one hand at the wrist, raises one finger) or through a movement pattern (shaking hands, touching both hands on table).
2. Child watches the position or movement and imitates it without looking at own hands.
3. Child looks at own hands or repeats movement while watching; compares to adult's position or movement, and describes any difference.
4. If inaccurate, child watches adult and repeats the imitation while watching own movement, then repeats without visual guidance. This is repeated until child imitates movement accurately without looking.
5. Repeat this for a variety of positions and movements, progressing from moving or positioning the arms to fine changes in position or movements of individual fingers and joints. Some movements and positions include:
 - Move both arms up, then both arms down.
 - Rest one arm on elbow.
 - One arm resting on elbow with wrist bent.
 - Open and close hands.
 - Shake hands from wrist.
 - Touch one finger to thumb.
 - Touch each finger to the thumb successively (index, middle, ring, pinky, and back again).
 - Walk fingers along table or floor.
 - Raise or bend fingers, alone or in various combinations.



Desired Response

Child uses kinesthetic sensory information to reproduce position and movement of body parts.

Undesired Response

Child looks at own arms, hands, or fingers during movement or positioning.

Variations and Adaptations

Perform these exercises as group or circle activities, with adult demonstrating movements or children taking turns being the leader.

Perform the activities in front of a mirror for clear visual feedback when child checks own movement or position for accuracy.

Any activity that involves positioning or movement of arms, hands, and fingers without looking is helpful for improving kinesthetic awareness. Counting on fingers without looking (fisting hand and straightening one finger at a time while counting) and finger plays with eyes open and closed are good examples.

Increased resistance can make movements easier to feel. Hand movement activities in sand, macaroni, or packing foam "peanuts" are helpful.

Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

KINESTHETIC AWARENESS
Classroom and Individual Practice

RECOGNIZING AND REPRODUCING LINE DIRECTION

Purpose

To improve ability to recognize and reproduce lines with directional accuracy, using kinesthetic sensory information

Materials

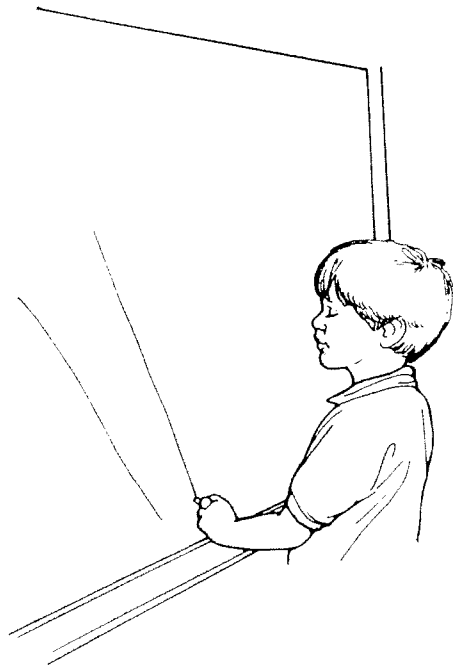
Chalkboard and chalk

Position

Child stands facing chalkboard, with eyes closed, grasping chalk in preferred hand. Adult stands next to child's preferred side.

Procedure

1. Adult moves child's hand so that a vertical line is drawn as the child focuses on how the line feels. If necessary, adult moves child's hand several times to trace over line until child has "the feel of it."
2. With eyes closed, child reproduces the line that was felt.
3. Child opens eyes and compares line angles. Child describes any difference.
4. If angles are different, child traces over the original line several times with eyes open, then with eyes closed.
5. Child repeats attempt to make a line in the same direction until similar angles are achieved. After inaccurate attempt, adult moves child's arm in the desired direction while child focuses on feeling the direction.
6. This is repeated with horizontal lines, 45-degree diagonal lines, and finally a variety of diagonal lines.
7. Follow this activity with practice of writing large letters or numbers on the chalkboard; have child focus on diagonal strokes with eyes open and closed. Letters A, K, M, N, V, W, X, Y, Z, and the number 7 are good for practicing this.



Desired Response

Child uses kinesthetic sensory information to discriminate and reproduce line angles accurately.

Undesired Response

Child looks at lines during discrimination or reproduction tasks.

Variations and Adaptations

When child can do this accurately with large movement on the chalkboard, repeat the steps with pencil and paper on desk, using progressively smaller lines. Children with better skills can do this with lines the size of letter strokes on classroom writing paper, using fine finger movements.

Have child reproduce larger lines on paper over a textured scribble board to increase sensory input to joints of the fingers, hands, and arms. The bumpy plastic panels used for covering fluorescent light fixtures (prismatic light diffusers) are excellent for this.

If child has difficulty keeping eyes closed, use a blindfold; or hold a piece of cardboard above the paper and have child write under it.

Draw lines on index cards with glue. Have child close eyes, feel the line, and draw one the same angle with index finger in powder on table or in damp sand.

Have child close eyes and draw diagonal lines or Xs, one after another, across a sheet of paper from left to right, trying to maintain lines of the same angle. Child decreases line size as skill improves.

Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

KINESTHETIC AWARENESS
Classroom and Individual Practice

RECOGNIZING AND REPRODUCING LINE LENGTH

Purpose

To improve discrimination and reproduction of lines of varying lengths using kinesthetic sensory information

Materials

Crayon or grease pencil; paper

Position

Child sits at desk with eyes closed, grasping crayon in preferred hand. Sheet of paper is placed on desk directly in front of child.

Procedure

1. Adult moves child's hand so that a line is drawn; child focuses on how long the line feels. If necessary, adult moves child's hand several times to trace over line, until child has "the feel of it."
2. Adult guides the child's hand to the paper next to the original line; child reproduces the line with eyes closed.
3. Child opens eyes and compares line lengths. Child describes any difference.
4. If lengths are different, child traces over the original line several times with eyes open, then with eyes closed.
5. Child repeats attempt to make a line of the same length until similar lengths are achieved.
6. This is repeated with progressively smaller lines until child can accurately imitate lines that are the length of spaces between lines on writing paper used in the classroom.
7. Follow this activity with practice in writing letters or numbers. Have child focus on length of strokes with eyes open and closed.

Desired Response

Child uses kinesthetic sensory information to discriminate and reproduce line length accurately.

Undesired Response

Child looks at lines during discrimination or reproduction tasks.

Variations and Adaptations

Have child reproduce larger lines on paper over a textured scribble board to increase sensory input to joints of the fingers, hands, and arms. The bumpy plastic panels used for covering fluorescent light fixtures (prismatic light diffusers) are excellent for this.

If child has difficulty keeping eyes closed, use a blindfold; or hold a piece of cardboard above the paper and have child write under it.

Draw lines on index cards with glue. Have child close eyes, feel the line, and draw one the same length with index finger in powder on table or in damp sand.

Have child close eyes and draw vertical lines, one after another, across a sheet of paper from left to right, trying to maintain lines of the same length. Then child repeats, drawing horizontal lines down the sheet of paper. Child decreases line size as skill improves.

Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

KINESTHETIC AWARENESS
Classroom and Individual Practice

RECOGNIZING AND REPRODUCING SIZE

Purpose

To increase awareness and control of the size of shapes and letters using kinesthetic sensory information

Materials

Pencil; paper; small shape stencils, including a number of the same shapes in various sizes. These can be purchased commercially (Crayola® Shapemakers) or made of cardboard.

Positioning

Child sits at desk with eyes closed, grasping pencil in preferred hand. Sheet of paper is placed on desk. Adult sits at child's preferred side.

Procedure

1. Child keeps eyes closed as adult moves child's hand to trace one of the shapes on the stencil several times until child has "the feel of it."
2. Adult removes the stencil and covers the shape that was drawn on the paper.
3. Child opens eyes and points to the stencil shape that was felt.
4. The tracing and the identified shape are compared. If they are different, child traces over the same stencil several times with eyes open, then with eyes closed.
5. Child repeats this with many sizes of several different shapes until size recognition is accomplished easily.
6. This process is repeated with the following change: after adult moves child's hand to trace each shape on the stencil, child draws the shape on paper, with eyes still closed, focusing on reproducing the size accurately.
7. Follow this activity with practice in writing letters or numbers. Have child focus on size of letters or numbers with eyes open and closed.



Desired Response

Child uses kinesthetic sensory information to recognize and reproduce shape size accurately.

Undesired Response

Child looks at shapes during recognition or reproduction tasks.

Variations and Adaptations

If the small stencils are too difficult, adult can move child's hand to make larger shapes and ask child to reproduce size without looking.

Have child do this activity on paper over a textured scribble board to increase sensory input to joints of the fingers, hands, and arms. The bumpy plastic panels used for covering fluorescent light fixtures (prismatic light diffusers) are excellent for this.

If child has difficulty keeping eyes closed, use a blindfold; or hold a piece of cardboard above the paper and have child write under it.

Have child close eyes and write across a sheet of paper from left to right, attempting to maintain letters of the same size.

Adult moves child's hand to make letters; child writes a letter the same size, without vision.

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Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

KINESTHETIC AWARENESS
Classroom and Individual Practice

RECOGNIZING AND REPRODUCING SHAPES—
TEMPLATE ACTIVITIES

Purpose

To improve ability to recognize and reproduce two-dimensional shapes by feel (kinesthetically)

Materials

Five 15" squares of thin plywood, paneling material, or thick cardboard; powder or cornstarch

Preparation

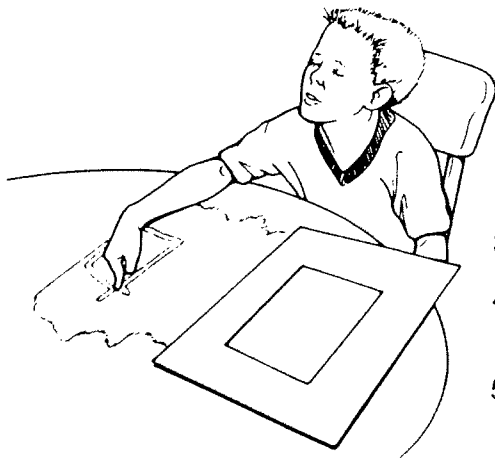
Make templates by cutting out basic shapes (circle, square, triangle, rectangle, oval) from plywood (or other stiff material), using a jig or saber saw or knife. Save the cut-out shapes. Place a thin layer of powder or cornstarch on the table, slightly towards the child's dominant side.

Position

Child is seated at a table, with eyes closed. Child's preferred hand is fistled except for index finger which is straight.

Procedure

1. Adult places a template in front of child (slightly to the nondominant side), and moves child's hand so that the index finger feels the outline of the shape. Child identifies the shape without looking.
2. Child feels the inside outline of the shape independently, eyes closed, and repeats this until child "has the feel" of the shape.
3. Child makes shape on powdered table top with finger.
4. Child opens eyes and compares reproduction with template shape.
5. If reproduction is inaccurate, child places shape piece that was cut out of the template over the powder reproduction and traces around it with finger (eyes open). Child compares shapes visually and describes difference to adult. Child closes eyes; adult moves child's hand so that index finger traces the original reproduction and the shape that was just traced, verbally comparing how they "feel." Child identifies the correct shape. Steps 1-5 are repeated until shape is accurately reproduced.
6. Steps 1-4 (and 5, if needed) are repeated for each shape.



7. Follow this activity by drawing shapes on paper with pencil or crayon with eyes open, then closed.

Desired Response

Child uses kinesthetic sensory information to recognize and reproduce shapes accurately.

Undesired Response

Child looks at shapes during recognition or reproduction tasks.

Variations and Adaptations

This activity can be done standing at the chalkboard, with reproductions formed with finger over chalk-covered surface.

Focus on shape recognition and reproduction accuracy. When shape is reproduced accurately, add size discrimination.

Have child reproduce shapes over a textured scribble board to increase sensory input to joints of the fingers, hands, and arms. The bumpy plastic panels used for covering fluorescent light fixtures (prismatic light diffusers) are excellent for this.

Diamond shapes are more difficult but can be added for older or more skilled children. Vertical diamonds are not usually copied accurately (even using vision) until child is eight years old, and horizontal diamonds until child is ten.

If working at a desk with no room for a powdered table surface, use a flat cookie baking pan or cardboard box with a smooth bottom and low sides, with a shallow layer of powder, damp sand, or cornstarch. Place the pan on the desk.

Children can do this activity in pairs, with one child assisting the other. Then have the children switch places.

If child has difficulty keeping eyes closed, use a blindfold.

Adult may need to stabilize the template so child can focus on the feeling of the shape rather than on trying to hold the template steady.

Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

KINESTHETIC AWARENESS
Classroom and Individual Practice

RECOGNIZING AND REPRODUCING SHAPES—
GLUE DRAWING

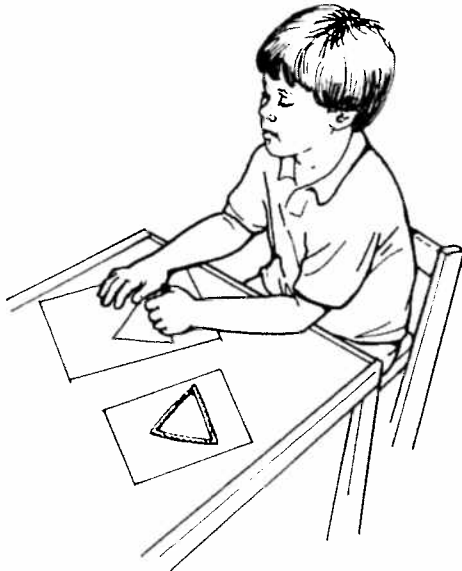
Purpose

To improve recognition and reproduction of two-dimensional shapes by feel (kinesthetically)

Materials

Glue; large index cards with shapes drawn on them; yarn or string; paper; crayon or grease pencil

Procedure



1. Child dips yarn or string in bowl of glue and sticks it to the lines that make up the shape on the index card. Child repeats this for all shape cards. Let glue dry.
2. Adult mixes up cards. Child closes eyes and picks one.
3. With eyes closed, child identifies or describes shape, and traces over it as long as necessary to "get the feel of it."
4. With eyes closed, child reproduces the shape with crayon or grease pencil on paper.
5. Child opens eyes and visually compares reproduction with the shape on the card. Child describes any differences.
6. If reproduction is inaccurate, child closes eyes and adult moves child's hand so that the index finger traces the shape on the card, then the reproduction on paper; child describes how they feel different. Child then repeats steps 4-6 until shape is reproduced accurately with eyes closed.
7. Steps 3-6 are repeated for all shape cards.
8. Follow this activity by having child draw shapes with eyes open, then closed.

Desired Response

Child uses kinesthetic sensory information to recognize and reproduce shapes accurately.

Undesired Response

Child looks at shapes during recognition or reproduction tasks.

Variations and Adaptations

Focus on shape recognition and reproduction accuracy. When shape is reproduced accurately, add size discrimination.

Have child reproduce shapes on paper over a textured scribe board to increase sensory input to joints of the fingers, hands, and arms. The bumpy plastic panels used for covering fluorescent light fixtures (prismatic light diffusers) are excellent for this.

Diamond shapes are more difficult but can be added for older or more skilled children. Vertical diamonds are not usually copied accurately (even using vision) until child is eight years old, and horizontal diamonds until child is ten.

If child has difficulty keeping eyes closed, use a blindfold.

Progress from simple, familiar shapes (circle, square, triangle, etc.) to more complex and unfamiliar shapes (figure eight or irregular shapes).

Child, instead of adult, can draw shapes on the cards if able to draw them accurately.

Draw shapes on index cards with glue (without yarn). When the glue is dry, use as described above.

Draw shapes with glue or fingernail polish, then cover with sand or sparkles.

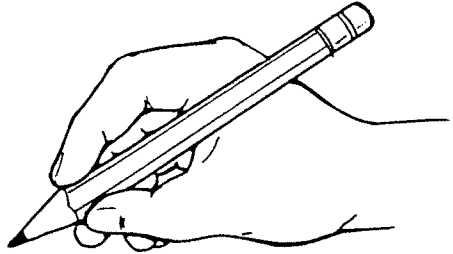
Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

KINESTHETIC AWARENESS
Classroom and Individual Practice

RECOGNIZING AND CONTROLLING GRIP POSITION



Purpose

To improve ability to recognize and maintain the optimal grip position for children who have difficulty feeling the position and pressure of the fingers

Position

Child holds writing implement in the mature tripod grasp. Pencil is held between thumb and middle fingers, with the index finger "riding" the pencil about 1" from the tip (1½" for left-handers).

Activities

Activities that provide visual, verbal, or physical cues for correct finger placement and increase sensory input to the fingers and joints, while maintaining the correct grip position, are helpful.

1. Adult verbally repeats the method for positioning the pencil several times until child can join in. Eventually child repeats it independently.
2. Adult molds child's fingers into the correct grip position; child closes eyes and focuses on how the position feels. Adult's hand firmly grips child's hand and maintains grip position while guiding child through large, sweeping movements on the chalkboard or large paper. Child maintains position for progressively smaller movements.
3. Tactile cues assist child in feeling and maintaining correct grip. A rubber band or string wrapped around the writing implement, triangular or Stetro® pencil grippers, and hexagonal-shaped crayons assist with finger placement. Kits are available commercially for making custom grippers that fit child's hands perfectly and provide maximum support for maintaining fingers in desired position.
4. Visual cues assist with finger placement. Paint a line around the pencil where it should be gripped, or mark pencil and fingers with watercolor markers, using color coding to indicate where each finger is to be placed.
5. Writing on chalkboard with small piece of chalk encourages the correct grip. Child scribbles on chalkboard with eyes open and closed, and focuses on how the grip position feels.

6. Child holds pencil in correct grip (adult assists with placement, if needed); adult pushes and pulls eraser end of pencil while child maintains grip. Push and pull with as much force as child can tolerate without changing grip position. Do this several times before any paper-and-pencil activity.
7. Scribbling on a textured surface provides increased sensory input about joint and finger position. Child maintains correct finger positioning while:
 - Scribbling on paper placed over sandpaper.
 - Scribbling with crayon on paper placed over templates to create "rubblings" of shapes or animals.
 - Scribbling with crayon on paper placed over a prismatic light diffuser panel (the bumpy plastic panels used for covering fluorescent lighting fixtures).
 - Making scribbling motions with a dowel on a prismatic light diffuser panel or other textured surface.
8. Follow these activities with writing practice or a written classroom assignment. Encourage child to use the cues or remember how the position feels to maintain the desired grip.

Goal

Child maintains desired grip position throughout activity and eventually for classroom paper-and-pencil activities.

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Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

KINESTHETIC AWARENESS
Classroom and Individual Practice
CONTROLLING PRESSURE

Purpose

To improve awareness and control of pressure exerted on writing implement during paper-and-pencil activities

Positioning

Child sits at desk or table with forearms supported on work surface so that larger (more forceful) arm muscles are not used for activities. Writing implements are gripped correctly. (Grippers or other cues may help.)

Preparation

Tension in the hand or arm often results in excessive force. If arm or hand is stiff or tense, work on relaxation activities for a few minutes before beginning this kind of activity. Remind child to relax arm during the activity, if necessary.

Activities

Any activity that involves focusing on pressure, with visual or auditory feedback, will help to develop pressure awareness and discrimination skills.

1. Child uses paintbrush with soft bristles (sable works well) to paint lines of various colors from left to right across paper. Adult encourages child to use consistent pressure so that each line is the same width across the page, and to use only the tip of the brush (not to flatten the bristles). Child circles places where width varies and attempts to improve performance so that fewer width changes occur on successive attempts. When child can quickly paint several lines with little variation in width, child adds finger movements to paint wavy lines. Finally, child works on keeping pressure consistent with eyes closed, using only the "feel" for guidance.
2. Encourage child to experiment with a soft lead pencil until lines are of the desired darkness and width. Cut out the desired line and tape it to the desk as a model for monitoring pressure. Child continues to draw lines, and eventually shapes, letters, or pictures, while maintaining the darkness and line width of the model. When this can be done easily, child practices maintaining the same pressure with eyes closed, visually comparing the product with the model periodically.

3. Child rubs crayon on paper over textured shape template. (These are commercially available in a variety of animal, car, dinosaur, and other shapes.) If too much pressure is used, the paper is likely to rip; if too little pressure is used, the image does not come through clearly onto the paper. After achieving the "perfect" pressure when watching, child tries to maintain the same pressure without looking. Adult can point out inconsistencies in pressure which are visible as dark or light places on the completed rubbing, and child can try to make one with more consistent coloring.
4. Follow these activities with writing practice or a written classroom assignment. When the writing activity is completed, encourage child to identify whether correct pressure was used.

Desired Response

Child uses consistent moderate pressure on the writing implement with eyes open and closed.

Undesired Response

Child repeatedly changes force exerted in response to visual feedback that pressure is too light or heavy.

Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

KINESTHETIC AWARENESS
Classroom and Individual Practice

CONTROLLING DIRECTION OF PENCIL MOVEMENT
—DOT-TO-DOT DESIGNS

Purpose

To improve ability to direct movement of the hands using kinesthetic sensory information

Materials

Unlined paper; markers, grease pencil, or crayon; homemade or commercially available dot-to-dot designs

Preparation

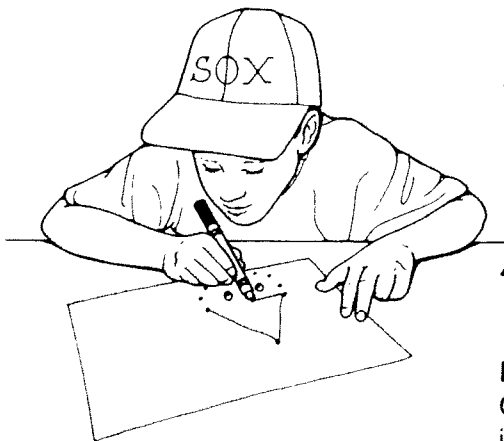
Prepare several dot-to-dot sheets of various degrees of difficulty. Include a page of simple vertical and horizontal lines and lines of various angles (formed when two dots are connected); simple shapes (circle, square, triangle, rectangle) and more complex designs and pictures.

Position

Child sits at desk or table; adult sits at child's preferred side. Child uses correct grip pattern (with cues if needed).

Procedure

1. Child grips marker and completes the most simple dot-to-dot designs. Adult encourages child to look at target dot and guide the pencil to it without shifting eyes away from the target.
2. When this can be accomplished easily, child progresses to more complex dot-to-dot shapes, always focusing eyes on the target dot for each connection. The eyes move from one target dot to the next.
3. If lines are not straight or do not connect the two dots, child closes eyes while adult moves child's hand from one dot to another several times until child has "the feel" of the movement. Child then repeats the attempt to connect the two dots while focusing on the target dot.
4. Child repeats, using more complex dot-to-dot designs. Child focuses on smooth movement from one dot to the next.



Desired Response

Child uses kinesthetic sensory information to guide the writing implement while keeping eyes on the target dot, and connects the two dots with a straight line.

Undesired Response

Child watches the movement of the writing implement or shifts eyes from target dot to writing implement.

Variations and Adaptations

Dot-to-dots can be made on the chalkboard, on a powdered table top, or in damp sand, shaving cream, or finger paint.

As skill increases, child works on increasing speed while still connecting dots accurately.

Children can make their own dot-to-dot pictures freehand or by placing tracing paper over a picture and making dots over the design.

Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

KINESTHETIC AWARENESS
Gym, Playground, and Extracurricular Activities

GAMES AND SPORTS FOR BODY AWARENESS

Purpose

To improve ability to recognize and direct position and movement of the arms, hands, and fingers using kinesthetic sensory information

Activities

The kinds of activities that help to develop body awareness are commonly carried out in gym classes and movement education programs. These can be more helpful for children with weak kinesthetic abilities if modified slightly. When a child has difficulty feeling body part positions or movement, improved control of movement is not likely to occur with repetition because the child's kinesthetic feedback is weak. That feedback enables most children to refine movement with repeated attempts. Focusing the child on "how the movement feels" and providing additional sensory feedback (visual or auditory) can improve the child's ability to monitor how closely any movement resembles the desired movement and to make adjustments to improve performance.

1. Child plays Simon Says, imitating positions of the leader. Encourage child to watch leader, not own body parts. Child checks position visually; if necessary, child corrects position without looking. Child repeats this until accurate positioning is achieved.
2. Set up obstacle courses that require lots of climbing through or under spaces, jumping over objects, and other activities that involve knowing where body parts are. Encourage child to look at obstacle, then to go through (under, over) without looking and to try not to touch body parts on the obstacle. Repeat several times with eyes open; then repeat with eyes closed. If needed, adult can verbally describe child's position ("Your arms are too close.") Child crawls through ladders and other obstacles with eyes open, while looking at the next obstacle.
3. Swimming activities are excellent for increasing awareness and control of movement. The added resistance provided by the water provides increased sensory input when movement occurs. Devise activities that involve movement of the arms, hands, and fingers in a variety of patterns. Encourage child to perform them with eyes open and closed.

4. Encourage activities that involve movement without visual guidance. Dance, gymnastics, and karate are examples of activities that involve awareness of position and movement of body parts in space, yet are difficult—or impossible—to guide visually. These can be done slowly, with the child focusing on how the movement feels and with feedback provided verbally by an adult or visually by use of a mirror. To improve kinesthetic awareness, correction of the position or movement without additional sensory feedback also should be encouraged.

Variations and Adaptations

Have child use mirrors to check positions and movement during any movement activity.

Weights sometimes improve a child's awareness of body position or movement by increasing the feedback received when movement occurs.

Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

**KINESTHETIC AWARENESS
Compensatory Strategies**

CLASSROOM MODIFICATIONS

Purpose

To improve performance of classroom tasks that rely upon kinesthetic sensory information

Strategies

Without clear awareness of the feelings that accompany fine changes in finger position, the child must use visual and tactile (touch) information to guide movement. Handwriting requires constant fine movements of fingers and finger joints. It also requires a great deal of visual guidance and conscious attention for children with weak kinesthetic skills. To help the child to compensate, consider ways to:

- Provide increased sensory guidelines to help with judgments about movement and positioning.
- Increase resistance to movement so that it is felt more easily.
- Modify writing expectations and decrease writing requirements.

The following are examples of these types of adaptation.

Provide additional sensory guidelines.

1. Have child use lined writing paper with left and right margin lines added.
2. If child has difficulty lining up numbers for math problems, turn lined paper sideways; or provide graph paper.
3. Paint a line around the pencil where it should be gripped.
4. Use a pencil gripper that provides tactile and visual cues for grip positioning.
5. Tape or glue a string or wrap a rubber band around the pencil where it should be gripped.

Increase resistance to movement.

1. Avoid ballpoint pens that glide easily and provide little sensory feedback. Mechanical pencils with strong, sharp lead (about .9 millimeter) are often ideal. Encourage use of a variety of writing implements, and allow child to use those that "feel the best."
2. For large writing or drawing, crayons or grease pencils provide more friction with writing surface and often can be felt more easily.

Modify expectations and requirements for writing performance.

1. Expect and reward steady progress, but don't judge the child's writing by the standards used for the class.
2. Introduce the word processor in elementary school, and gradually allow its use in written assignments if writing skills don't improve with age and practice. However, exclusive use of the word processor is not recommended, especially in the elementary grades, because writing skills will not improve without practice.
3. Be flexible about the appearance of written work. Require legibility, not attractiveness.
4. Allow increased time for written assignments or tests.
5. Modify length of written assignments. For example, require only one well-written paragraph instead of the four paragraphs expected of the rest of the class.
6. Test orally if child's written performance does not demonstrate knowledge accurately.
7. Use multiple choice or one-word answer formats for assignments and tests. For example, require child to write a spelling word instead of a sentence including the spelling word.

Comment

These suggestions may improve a child's success with handwriting in the classroom, but they should not be used exclusively unless it has been determined that the child's kinesthetic skills will not improve to a functional level with practice. It is equally important to present activities to improve child's handwriting skills.

Use of these activities should be directed by a qualified therapist.

Child's Name _____

Date _____

**KINESTHETIC AWARENESS
Compensatory Strategies**

GYM, SPORTS, AND EXTRACURRICULAR ACTIVITIES

Purpose

To improve ability to participate in gym and sport activities that require kinesthetic awareness of position and movement of body parts

Strategies

If child has difficulty feeling and guiding position and movement accurately due to kinesthetic weakness, modify activities so that:

- Other sensory information can guide the child's movement.
- The accuracy requirements for positioning or movement are minimized.
- The activity can be accomplished using simpler movements.

Adaptations

Because these activities involve an area of known weakness, be sure they are taught in a noncompetitive and individualized manner. The following are a few examples of this kind of modification.

1. Activities such as gymnastics, karate, and dance, which rely heavily upon internal awareness of body position, often can be performed more easily in front of a mirror so that movement can be guided visually.
2. When playing ball games, if an arm or leg must be directed toward a ball or target, the child must direct movement kinesthetically so that visual attention can be directed at the ball (when hitting a baseball with a bat) or on the target (when shooting baskets in basketball). Modify so that spatial demands of directing the arm are decreased. For example, use a T to hold the ball while watching the bat swing; use a larger bat or ball; lower the basket or use a smaller ball for basketball.
3. When serving balls (as in tennis, badminton, and volleyball), visual attention is focused on the ball or shuttlecock while the arm is moving. This can be simplified by throwing (for volleyball) or placing the ball or shuttlecock on the racket and throwing (for tennis or badminton).



Desired Response

Child is able to participate in sports without frustration or embarrassment.

Use of these activities should be directed by a qualified therapist.