

Teacher's Edition
Revised

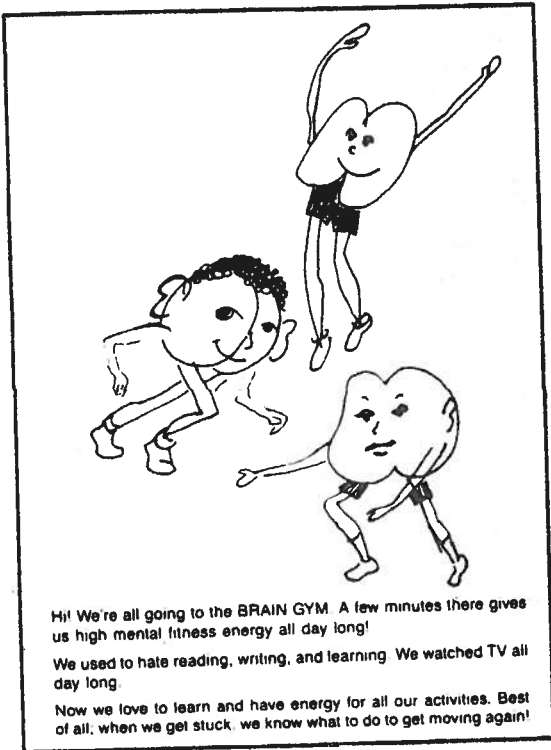
Introduction

The *Brain Gym Teacher's Edition* is a companion guide to the *Brain Gym* book, for the use of parents, educators, and others who are actively working with children or adults, individually or in groups, to help them draw out their full potential as learners. The reader will find this an easy-to-use, self-explanatory reference book whenever Brain Gym is being learned. By turning to any one page in the *Teacher's Edition*, the educator will find information and teaching strategies which will enable him or her to explain, refine, and vary the activity for a particular individual, situation, or need. Included on each page is information under the following headings:

TEACHING TIPS
VARIATIONS
ACTIVATE(S) THE BRAIN FOR

ACADEMIC SKILLS
BEHAVIORAL/POSTURAL CORRELATES
RELATED MOVEMENTS
HISTORY OF THE MOVEMENT

As explained in the histories of the movements, these Brain Gym activities were discovered to either stimulate (Laterality Dimension), release (Focusing Dimension), or relax (Centering Dimension) students involved in particular types of learning situations. Specific activities were observed to be more helpful than others for moving through individual learning blocks, and a pattern was recognized. This *Teacher's Edition* can guide the educator or parent to observe and recognize these patterns and thus make facilitation of the learning experience more precise and accurate.



The human brain, like a hologram, is three-dimensional, with parts interrelating as a whole. Thus, the infant or preschool child is capable of globally taking in the adult world and recreating it; the student easily integrates learning presented from a multisensory, rather than abstract, orientation. However, the human brain is also task-specific, and, for the purposes of applying Brain Gym movements, may be understood to comprise the left and right hemispheres (Laterality Dimension), the brainstem and frontal lobes (Focus Dimension), and the limbic system and cerebral cortex (Centering Dimension).

Within laterality, or sidedness, exists the potential for bilateral integration, the ability to cross the central midline of the body and to work in the midfield. When this skill is mastered, one can process a linear, symbolic, written code, left to right or right to left, an ability fundamental to academic success (see *Edu-K for Kids*). The inability to cross the midline results in such identifications as "learning disabled" or "dyslexic." Those movements which will help to stimulate bihemispheric and bilateral integration are so identified under the ACTIVATE(S) THE BRAIN FOR category.

Focusing is the ability to cross the participation midline, which separates the back and front of the body as well as the

back (occipital) and frontal lobes. Incompletion of developmental reflexes results in the inability to express oneself with ease and to participate actively in the learning process. Students who are underfocused are often labelled as "inattentive," "unable to comprehend," "language-delayed," or "hyperactive." Some children are overfocused and try too hard. Those movements which help to unblock focus are designated as back/front integration activities under the ACTIVATE(S) THE BRAIN FOR category.

Centering is the ability to cross the midline between the upper and lower body and the corresponding upper and lower brain functions: the midbrain (emotional content) and cerebrum (abstract thought). Nothing can be truly learned without feeling and a sense of meaningfulness. The inability to stay centered results in irrational fear, fight-or-flight responses, or an inability to feel or express emotions. Those movements which relax the system and prepare the student to take in and process information without negative emotional overlay are identified by the centering or grounding designation under the ACTIVATE(S) THE BRAIN FOR category.

Once the student learns to move his or her eyes, hands, and body in concert, the Brain Gym activities have served their purpose, and integration becomes an automatic choice. Some individuals will find Brain Gym helpful over a short period of time to establish a desired behavior. Most students consciously choose to continue the movements for a matter of weeks or months, to help reinforce the new learning. Many learners will return to their favorite Brain Gym movement routine when new stresses or challenges appear in their lives.

Brain Gym is based upon three simple premises:

1. Learning is a natural, joyous activity that continues throughout life.
2. Learning blocks are the inability to move through the stress and uncertainty of a new task.
3. We are all "learning-blocked" to the extent that we have learned not to move.

Many of us have come to accept limitations in our lives as inevitable, and may fail to find the benefits that positive stress can bring. The Brain Gym movements are a natural, healthful alternative to tension that we can use and teach others to use when challenges present themselves.

The educator, in particular, must be an expert at identifying behaviors that indicate that the student is having difficulty moving information through to integration. With Brain Gym, most learning blocks can be released if they are recognized and addressed in a supportive manner.

The healthy child knows when he or she is stuck, and asks for help by means of his or her behavior. There are no lazy, withdrawn, aggressive, or angry children, only children denied the ability to learn in a way that is natural to them.

Given the opportunity to move in his own way, the child is capable of completing the learning cycle. With support, and with permission to move in the classroom in a positive manner, he will unfold into his unique and complete intelligence in a way that is natural and easy. He will not be blocked; he will be free to learn.

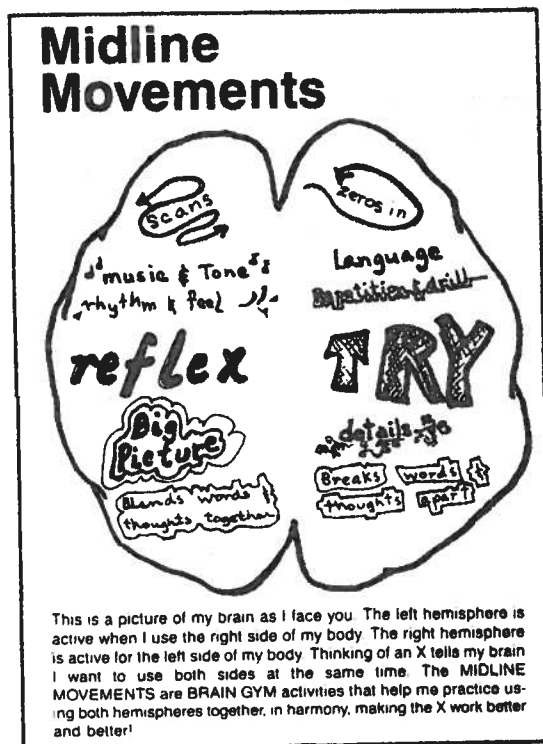


Hi! I'm Jodie. I love to go to the BRAIN GYM. School used to be hard work for me. I got good grades but I had no time for myself. BRAIN GYM is like turning on my motor. I can feel my whole brain buzzing. Everything comes easy to me now!

The Midline Movements

The Midline Movements focus on the skills necessary for easy two-sided (left-right) movement across the midline of the body. The vertical midline of the body is the necessary reference for all such bilateral skills. The midline (first defined by Dr. Dennison) is the area where the left and right visual fields overlap, requiring the paired eyes and all of their reciprocating muscles to work so well as a team that the two eyes function as one. Development of bilateral movement skills for crawling, walking, or seeing depth is essential to the child's growing sense of autonomy. It is also a prerequisite for whole-body coordination and ease of learning in the near-visual area. The Midline Movements help to integrate binocular vision, binaural hearing, and the left and right sides of the brain and body.

Many learners beginning school are not developmentally prepared for the bilateral, two-dimensional skills of near-point work. Sometimes a student is coordinated for play or sports activities (involving three-dimensional space and demanding binocular vision only beyond arm's length), yet is not ready to use both eyes, ears, hands, and brain hemispheres for near-point work, such as reading, writing, and other skills involving fine-motor coordination. Other students show coordination for academic skills or near-point activities, yet are not ready for whole-body coordination on the playing field. The Midline Movements facilitate completion of developmental skills and give the learner permission to build on the concrete operations already established. They help students to increase upper-lower body coordination, for both large-motor activities and fine-motor skills.



Cross-motor activities have been used to activate the brain since our understanding of laterality began over a century ago. Noted authorities such as Orton, Doman, Delacato, Kephart, and Barsch have used similar movements successfully in their learning programs. Dr. Dennison drew from his knowledge of these programs in developing the Midline Movements series.

Paul Dennison has worked closely with behavioral optometrists for more than twenty years. He recognizes the value of perceptual-motor and vision training for certain students, and has included his own movement innovations for releasing visual stress and creating eye-teaming skills.

Some of the Midline Movements have been adapted from activities used in behavioral optometry to increase brain-body coordination. Others are borrowed from sports, dance, or exercise programs. Still others, totally unique to Edu-K, are the innovations of Dr. Paul Dennison.

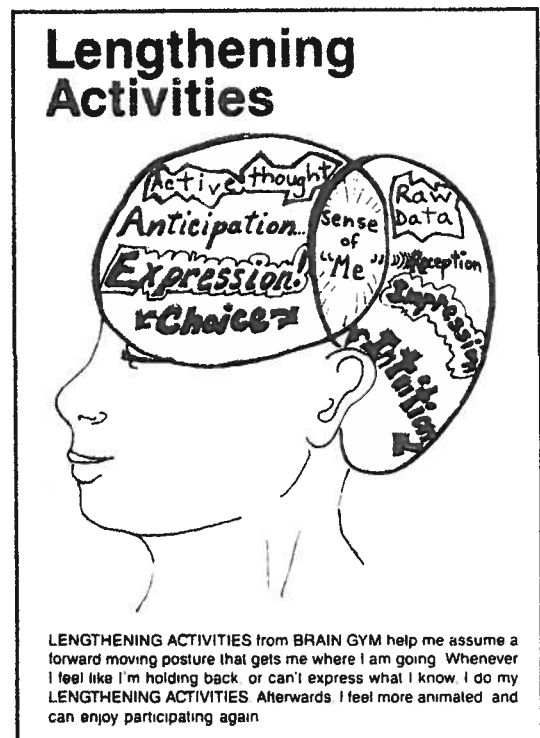
Lengthening Activities

The Brain Gym Lengthening Activities help students to develop and reinforce those neural pathways that enable them to make connections between what they already know in the back of the brain and the ability to express and process that information in the front of the brain. These activities are especially effective when used to release reflexes related to specific language disabilities. Learners need to approach the communication skills of reading, writing, listening, and speaking with a sense of adventure, curiosity, and risk-taking. Yet some young people perceive these activities as immediate threats to their survival. The survival mechanism housed in the brainstem is well developed during the first five months of life to take in sensory data from the environment. When placed in new situations where there is too much information, the organism will respond by withdrawing or holding back until there is sufficient comfort to proceed. One physiological reflex to danger is to contract the muscles. This reflex has served over the centuries to protect people from real threats to their lives. It affects posture by shortening the tendons in the back of the body, from head to heels, thus confounding vestibular balance and the sense of spatial relationships.

This contraction response, known as the "tendon-guard reflex" to doctors of chiropractic who practice the Sacro-Occipital Chiropractic Technique (SOT), can become a habit, and is then difficult or impossible to release without training. What is perceived to constitute danger, thus activating the reflex, depends on patterned responses from infancy, and varies for different individuals. Generally, the tendency to contract is lessened as individuals experience a feeling of "participation readiness." The front portion of the brain, especially the frontal lobe, is involved in comprehension, motor control, and rational behaviors necessary for participation in social situations. The Lengthening Activities have been found to relax those muscles and tendons that tighten and shorten by brainstem reflex when we are in unfamiliar learning situations. This resets the proprioceptors, the "brain cells in muscles" that give us information about where we are in space, enabling us to have better access to the whole brain-body system.

The Lengthening Activities may resemble those stretching and limbering exercises done by athletes and dancers in their warm-ups. Although these activities may be used for muscle toning before or after physical exercise, they also serve a different purpose. Each re-educates the body to make lasting changes in posture, restoring muscles to their natural length. Language used to facilitate these movements should describe "reaching, lengthening, expanding," or "opening," rather than "stretching" or "trying," which suggest efforting beyond the natural capacity.

Lengthening Activities also help to develop the sense of participation readiness by releasing or helping to complete infant reflexes that emphasize one-sidedness, crucial to body differentiation and language development. These reflexes continue to demand first priority on neural pathways when individuals have not successfully matured through them. Lengthening Activities address several developmental responses, including the labyrinth responses (birth to four or five months) necessary for development of the inner-ear mechanism and its relationship to gravity; the tonic neck reflexes (birth to three months) critical to the development of sidedness as well as to flexion and erection against gravity; and differentiated movement (birth through childhood), a gradual process of learning to distinguish among the muscles, tendons, and joints of the body, resulting first in gross-motor control and eventually in fine-motor control.



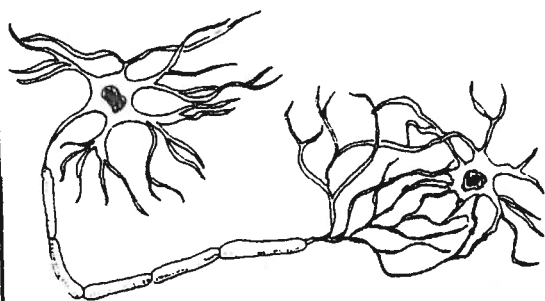
Energy Exercises and Deepening Attitudes

The Brain Gym Energy Exercises and postures for Deepening Attitudes help to re-establish neural connections between body and brain, thus facilitating the flow of electromagnetic energy throughout the body. These activities support electrical and chemical changes that occur during all mental and physical events. Left-to-right/right-to-left, head-to-foot/foot-to-head, and back-to-front/front-to-back circuitries establish and support our sense of directionality, of sidedness, of centeredness, and of focus, as well as our awareness of where we are in space and in relation to objects in our environment.

The Energy Exercises validate important tactile and kinesthetic information about inner-body relationships that are usually developmentally established during the infant's first year. When visual skills are built on this proprioceptive foundation, a match is easily made between what is seen and what is experienced. Without this congruency, conflict among the sensory channels makes learning difficult.

The human body is one of the most complex of all electrical systems. All visual, auditory, or kinesthetic input—in fact, all sensory information—is changed into electrical signals and relayed to the brain along nerve fibers. The brain then sends out electrical signals along other nerve fibers to tell the visual, auditory, and muscular systems how to respond. These currents travel at speeds of up to 400 kilometers (248 miles) per hour—faster than the fastest electric trains in use!

Energy Exercises



In science class we learned that the brain has billions of tiny nerve cells called neurons. Like telephones, they hook up different circuits in the body. When I do ENERGY EXERCISES, I feel like I am hooking up these connections, so my inner system of communication will work even better!

In the same way that electrical circuits in a house can become overloaded, neurological and physiological signals can become jammed and switch off, blocking the normal flow of brain-body communication. Both Western and Eastern medical authorities recognize the need to keep the electromagnetic circuits of the body (described as meridians in the Chinese system of acupuncture) flowing freely.

During periods of increased stress, as adrenalin levels rise, a lowering of electrical potential across the nerve membrane occurs, preparing the body for fight or flight. In this state, the body reacts in order to survive, focusing electrical energy away from the neocortex and to the sympathetic nervous system. Energy Exercises and Deepening Attitudes activate the neocortex, thus refocusing electrical energy back to the reasoning centers. This stimulates parasympathetic function and decreases the release of adrenalin. By increasing the electrical threshold across the nerve membrane, thought and action are again coordinated.

Additionally, the semicircular canals of the inner ear are stimulated by electrical activity that occurs during movement. These canals, in turn, activate the brainstem's reticular formation, which screens distracting from relevant information and creates wakefulness, facilitating focus and attention in the rational centers of the brain. When the semicircular canals have been damaged or if they are not adequately

stimulated by movement, a person may have difficulty concentrating. Energy Exercises and Deepening Attitudes provide a balanced stimulus to the semicircular canals, thus activating and focusing the higher brain centers for fine-motor skills and new learning.

Some of the Energy Exercises and Deepening Attitudes are derived from acupressure systems, such as Jin Shin Jitsu and Jin Shin Do. Others were inspired by Touch for Health and Applied Kinesiology techniques. Dr. Dennison combined these exercises with eye movements that enhance the sense of directionality and build visual skills on a kinesthetic basis. He gave playful names to each of the activities while working with students at his reading centers.

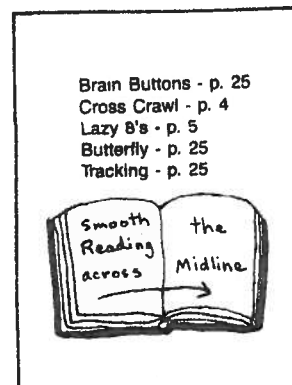
Brain Gym at Work...and Play!

READING SKILLS

Crossing the Visual Midline

Moving the eyes across the page without inhibiting the receptive brain

The development of visual skills for reading begins with the ability to move both eyes in tandem from left to right across the midline of the page and across the corresponding visual midline. For reading, one eye must be dominant for focusing, the other eye for blending. Although both skills are available to each eye, stress in learning the tasks of focusing and blending for reading may cause visual disorientation.



Brain Buttons



Cross Crawl

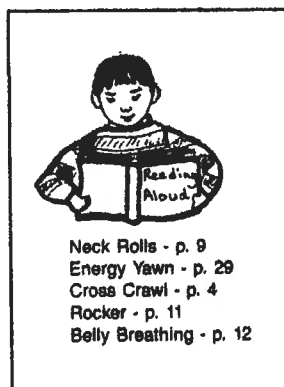


Lazy 8s

Oral Reading

Expressive reading with emotion and interpretation

The reader must discover that he or she is telling a story and communicating ideas through reading. One must have the concept of a verbal code in order for true reading to be possible. In Western languages, the code includes an auditory as well as a visual and a motor component. All three of these must be used together for reconstruction of the code to take place.



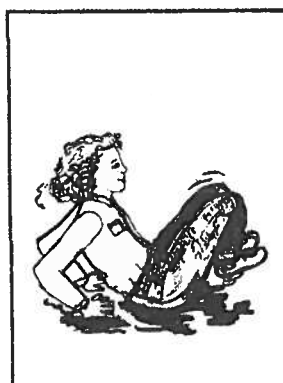
Neck Rolls



The Energy Yawn



Cross Crawl



The Rocker



Belly Breathing

Reading Comprehension

Focused reading involving anticipation and internalization of language

Reading is an active reconstruction by the reader of the author's message or code. There's nothing inherently meaningful about the code itself. The success of the communication depends upon the writer encoding something meaningful and the reader decoding it, making it his or her own. Thus, communication through the written word depends on the reader's active recreation of the work as he or she reads it.



Calf Pump - p. 20
Footflex - p. 19
Grounder - p. 22



The Calf Pump



The Footflex



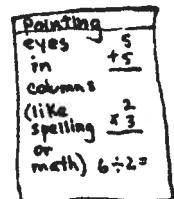
The Grounder

THINKING SKILLS

Organization Skills

Moving the eyes vertically as well as horizontally without confusion

Familiarity with multimodality (visual, auditory, tactile, kinesthetic) and multidirectional processes is a prerequisite for comprehending math and spelling. Until left, right, up, and down are recognized as unique visual spaces, the learner will have difficulty with words or symbols presented in columns, and with placing symbols in an ordered sequence.



Earth Buttons - p.26
Space Buttons - p.26
Balance Buttons - p.27



Earth Buttons



Space Buttons

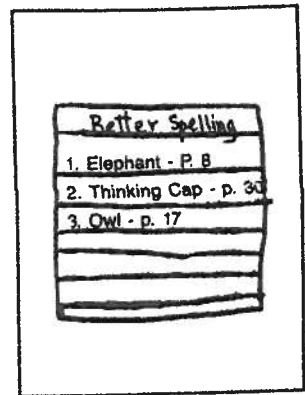


Balance Buttons

Spelling

The ability to access visual memory and simultaneously build auditory constructs

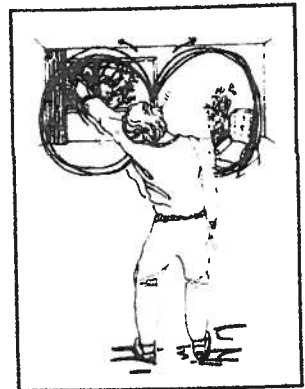
For efficient spelling, development of both short- and long-term memory for storage of information about sounds and associations is essential.



The Thinking Cap



The Owl

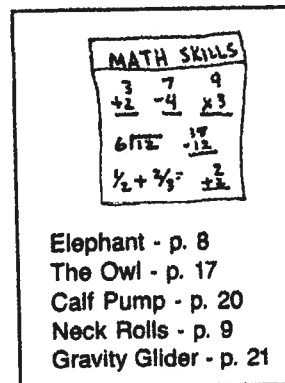


The Elephant

Math

The ability to work in a multidimensional, multidirectional medium

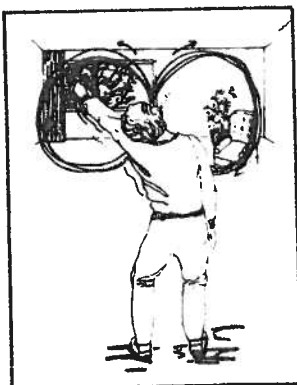
Math skills are more accessible to the student who has internalized concepts about space, mass, quantities, and relationships.



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The Owl - p. 17
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Neck Rolls - p. 9
Gravity Glider - p. 21



The Owl



The Elephant



The Calf Pump



Neck Rolls



The Gravity Glider

WRITING SKILLS

Eye-Hand Coordination

Penmanship, cursive writing, and drawing in the left, right, upper, and lower visual fields

The learner discovers that symbols (letters or pictures) can communicate meaning. The desire to communicate through symbols is the first step in acquiring writing skills. Gross-motor movement is established as a basis for handedness and fine-motor control.



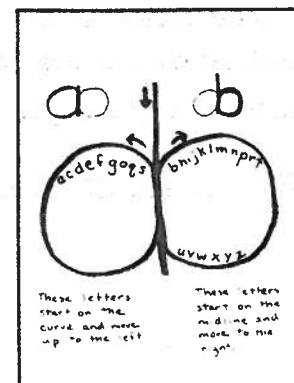
Double Doodle



Arm Activation



Lazy 8s

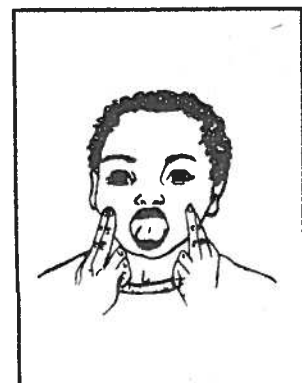


Alphabet 8s

Creative Writing

The ability to express experiences received and stored in the hindbrain as personal language

Skills of reading and writing the code develop together, each reinforcing the other. Writing helps to establish the skills of attention (focus), perception (meaning), and discrimination (connecting the code to associations and feelings). Writing skills must keep pace with reading skills, and ideally are maintained at a level no more than two years below the reading level.



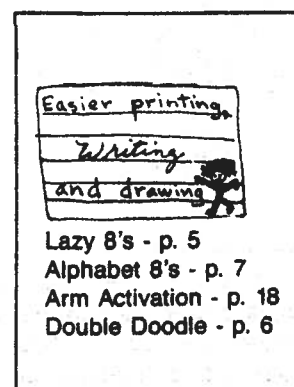
The Energy Yawn



The Footflex



The Calf Pump



Easier printing
Writing
and drawing

Lazy 8's - p. 5

Alphabet 8's - p. 7

Arm Activation - p. 18

Double Doodle - p. 6

Creative
and expressive
writing

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Energy Yawn - p. 29

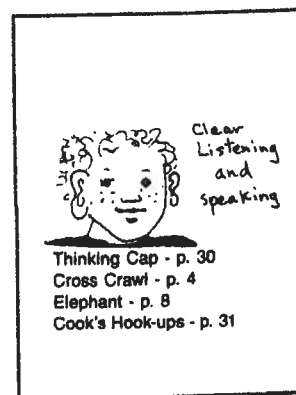
SELF-AWARENESS SKILLS

Crossing the Auditory Midline:

Clear Listening and Speaking

Active listening involves both external and internal feedback and feedforward

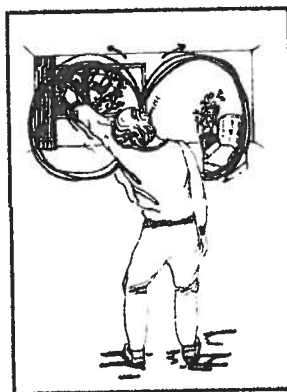
Active listening involves both reception and processing of meaning, and is a basic prerequisite to all effective communication. Externally, motor responses are necessary for hearing and speech. Internally, one must interpret thoughts and associations to be able to respond from one's experience. The feedback-feedforward loop allows comprehension and expression to take place.



The Thinking Cap



Cross Crawl



The Elephant

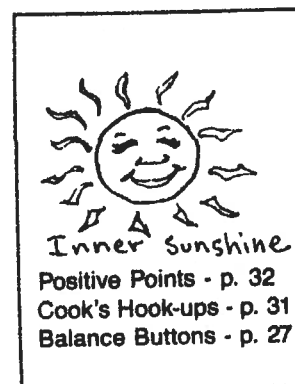


Hook-ups

Self-Concept: Inner Sunshine

Self-esteem is both the goal and the means of self-directed learning

Having confidence within the boundaries of personal space helps one to feel safe, to know when risk-taking is appropriate, and to respect other people's space. Personal space is the immediate working area around the body, including all the space one can comfortably reach in any direction. Into this space, we can radiate our thoughts, feelings, and self-expression.



Positive Points



Hook-ups



Balance Buttons

Whole-Body Coordination for Sports and Play

Basic brain-body reflexes are essential for decision-making while one is in motion

The learner develops a sense of the physical area of his personal space and defines his boundaries. This safe space has left/right, top/bottom, and back/front dimensions. Improved visual and kinesthetic figure-ground manifest on the playing field as ease of tracking and hand-eye coordination. The learner discovers greater autonomy while coordinating his brain and body through focused movement.



**Sports & Play
Skills**

Think of an X - p. 15
Cross Crawl - p. 4
Balance Buttons - p. 27
The Rocker - p. 11
Space Buttons - p. 28
The Energizer - p. 14



Think of an X



Cross Crawl



Balance Buttons



The Rocker



Space Buttons



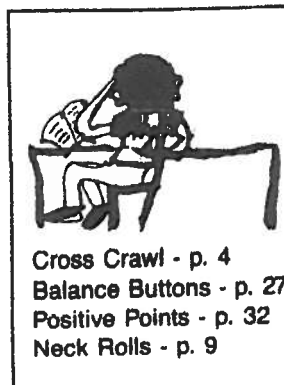
The Energizer

HOME-STUDY SKILLS

Memory and Abstract Thinking

Integration of silent speech and visualization skills, better known as thinking

Silent speech is necessary to interpret abstract concepts and to process language once reading vocabulary exceeds speaking vocabulary (sixth-grade level). Auditory and visual input must be integrated to enable the storage of information into short-term memory for analytical use and the retrieval of information from long-term memory for verbal expression.



Cross Crawl



Balance Buttons



Positive Points

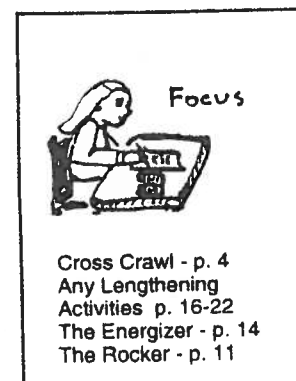


Neck Rolls

Creative Thinking

Integration of what is presented by others with one's own life and thought

Focus, attention, and concentration require integration of prior life experiences (actual, imaginary, or vicarious) and new information (received by the hindbrain and expressed in language through the forebrain), so that the new is processed and stored as personal knowledge.



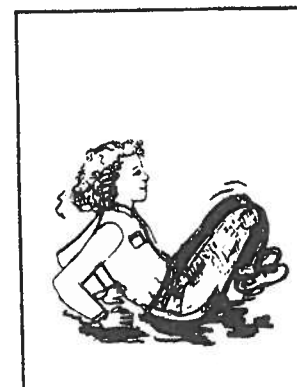
Cross Crawl



The Gravity Glider



The Energizer



The Rocker

Speed-Reading

Skimming and scanning abilities made accessible

In speed-reading, one bypasses as much of the linear process as possible while still actively taking in information. Skimming is exploring the printed page for meaningful material, while skipping the redundant. Scanning is reviewing the data for anticipated information, such as a name or date. The skilled speed-reader varies his speed according to writing style and subject matter.



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Cross Crawl - p. 4
Any Lengthening - p. 17-22



Lazy 8s



Cross Crawl



The Owl

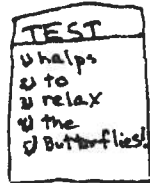


The Calf Pump

Test Taking

Relaxing the butterflies

Information which has been learned or experienced is stored in the long-term memory centers of the brain. The ability to retrieve and use this information, especially in a situation which tests our skills and abilities, requires focus and presence, without confusion, anxiety, or distraction.



Water - p. 24
Lazy 8's - p. 5
Earth Buttons - p. 26
Space Buttons - p. 28
Cook's Hook-ups - p. 31
Cross Crawl - p. 4



Space Buttons



Cross Crawl



Water



Lazy 8s



Earth Buttons



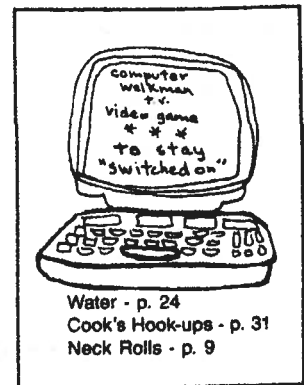
Hook-ups

PERSONAL ECOLOGY SKILLS

Productivity at the Keyboard and Video Screen

The ability to stabilize homeostasis

For the sensitive individual, electronic devices may aggravate visual, auditory, or other physiological stresses. The video screen provides only one visual plane, limiting the use of binocular vision, depth perception, and peripheral vision. The constant hum of many devices switches off auditory skills, while the electromagnetic field of radio-controlled equipment may negatively affect body meridians.



Water



Hook-ups

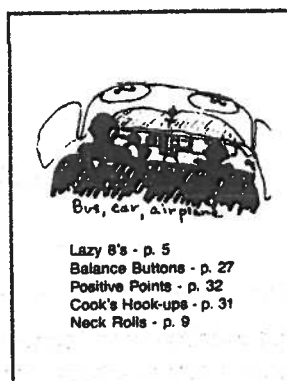


Neck Rolls

Riding in a Car, Bus, or Plane

Crossing the moving midline

The body must keep its sense of balance in a moving vehicle by compensating with the inner ear for motion left to right, back to front, or side to side. Binocular vision and depth perception may also be affected by this motion.



Balance Buttons



Lazy 8s



Positive Points



Hook-ups



Neck Rolls



The Thinking Cap

