Texas School for the Blind and Visually Impaired
Outreach Programs
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Active Learning Study Group

December 2, 2014

3:00-4:00 PM

Presented by

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Developed for

Texas School for the Blind & Visually Impaired

Outreach Programs

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Early Learning Step-by-Step

- Chapter 5: Toys and Materials
- Ideas for Active Learning to:
    1. Learn Midline Organization of Hands
    2. Achieve Head Control
    3. Learn to Sit Unsupported
    4. Learn to Stand and Walk Independently

Active Learning Materials

- Many of the materials can be purchased at www.LilliWorks.com and others are homemade.
- Some of the pictures included in this PowerPoint are used with permission from LilliWorks.

Trays with Objects

Bag with Corn Starch

Balloons with Beans

Buckets

SPG Boards
Developing finger, hand, and arm movements

- Manufactured SPG Board
- Home-made Scratch Board

Figure 1 Photo of SPG Board from LilliWorks

Figure 2 Photo of home-made SPG Board

Home-made SPG Boards

- Grab and Release
- Grab and Explore

Figure 3 Photo of home-made SPG board featuring objects suspended on short elastic for grab and release actions.

Figure 4 Photo of home-made SPG board featuring objects on long elastics to allow the child to grab and explore with hands, mouth, etc.

Cummerbund

- Works well for a child whose hands are usually positioned near chest or stomach to encourage exploration and movement.
- Objects attached with Velcro strips

Figure 5 Photo of cummerbund with lightweight balls and bells connected by Velcro strips.

Bead and Chain Holders

- Clamps on for lots of responsive fun. Uses the largest bead chains available and strong clamps.

Figure 6 Photo of Bead and Chain Holder used with permission from LilliWorks.com

Bead and Object Kits

- From www.LilliWorks.com .
- Centers are made from nut can and 10” ball. Turn a can or a ball into a super Active Learning object of your own construction.
- Results in a highly responsive, tactile, unusually interesting and acoustically alive object.
- The kit comes with elastic, beads, and other objects similar to the illustration, and a can or ball.

Figure 7 Photo of Bead and Object Kit using 10" ball. Photo used with permission from LilliWorks.com

Figure 8 Photo of Bead and Object Kit using nut can. Photo used with permission from LilliWorks.com

Harp

- Designed to encourage child who is passive or spastic to commence using finger movements and to make scratching action more explorative.

Figure 9 Photo of two home-made harps.

Sensitar

- Designed to encourage child who is passive or spastic to commence using finger movements and to make scratching action more explorative.
- Can also use small wire springs instead of rubberbands.

Figure 10 Photo of home-made Sensitar.

Object Grid

- The Grid Holder is intended to hang light objects in an array over a learner. Though, like the ceiling panels in Dr. Nielsen's Little Room, it can never replace the full Little Room experience.
- It is lighter-weight all wood construction, and a counterweight. It has a telescoping feature and twin high-strength solid plastic hangers for a pipe, clips or rope.

Figure 11 Photo of Object Grid. Used with permission from LilliWorks.com

Tipping Board

- This adjustable stand fits over legs and accepts pegboard panels, Dr. Nielsen's Little Room panels, or the SPG Board.

Figure 12 Photo of Tipping Board. Used with permission from LilliWorks.com

Wall Mounted Object Board

- This hardwood unit mounts on the wall and has three arms that fold out to hold lightweight hanging objects.
- The arms fold down – each arm has a safe "break-away" joint if the learner exerts too much pull.

Figure 13 Photo of Wall Mounted Object Board. Used with permission from LilliWorks.com

Kneeling in a Little Room

- Sits on Resonance Board
- Here is positioned with open side on the board surface

Figure 14 Photo of child kneeling on a Resonance Board playing with objects in a Little Room. The Little Room is positioned with the open end on the base of the Resonance Board. Used with permission from LilliWorks.com

Support Bench used with SPG Board and Tray

- Used for child who has not achieved ability to sit unsupported by age of 1-2 years.
- Child needs enough time to discover that being in prone allow plenty opportunity to be active.
- Use SPG boards and trays with interesting tactile and auditory items
- Can be used with or without head support
- Wheels can be added when child has control of arm/leg movement and is attempting to crawl

Figure 15 Child prone on the Support Bench with head support in place, SPG board under his hands and a tray will objects under his feet and knees.

Resonance Board

- Perhaps most important piece of equipment
- Use with almost all equipment
- Use for independent and interactive play
- Purchase from LilliWorks or build with plans

Figure 16 Photo of a Resonance Board.

Essef Board Stand

- Available stands hold the board vertical without being on a wall. Plans available from LilliWorks.com

Figure 17 Photo of Essef Board Stand. Used with permission from LilliWorks.com

Essef Board

- Designed to encourage child to perform leg movements and achieve muscle strength.
- Used with 4 or 6 springs.
- Can be hung on wall for use with hammock swing, directly on floor without or without trays of objects on top

HOPSA Dress

- Lilli's HOPSA dress safely provides vertical orientation and support without the legs bearing weight.
- Velcro belt secures the child, and has a snap quick release.
- Cross bar is sold separately.
  Optional Block and Tackle pulleys allow the child to be raised or lowered as needed.

Figure 18 Photo of a young boy in a HOPSA Dress balanced on an Essef Board.

Active Learning Ideas:

Learn Midline Organization of Hands, Achieve Head Control, Learn to Sit Unsupported, and Learn to Stand and Walk Independently.

Developed from Materials Written by Dr. Lilli Neilsen

Movement	Example of Observed Behavior	Equipment	Activity
Learning Midline Organization of Hands	Passive hands Lies with clenched hands Able to open and spread fingers Able to suck on fist Performs circular movements with arms Reaches without grasping item Able to push objects within reach Grasps reflexively Closes hand around e.g. hair, corner of clothes or bedclothes with passive thumb Releases grasp without awareness Scratches skin, clothes, etc. Shows interest in tactile/auditory feedback when reaching out Repeats 1 or more movements after break of 1-2 seconds Uses the ulnar grip, fingers no 3,4,5 are the strongest, the thumb does not participate Moves object to mouth Shows various ways of grasping Able to grasp and bring to mouth Reaches toward dangling objects Opens and closes hand	• Little Room • Position Board • Resonance Board • Things that produce tactile and auditory feedback • Graspable objects: strips of paper, keys, spoons • Buncher with spoon when feeding, vibrator in impaired hand • For wheelchairs a table adapted for reach • Things for mouthing: plastic pipe or tubing • Support Bench • Scratch Board • Sensitar • Tray of marbles • Sound Box • Objects that make sounds when turned or rotated • Balloon with beans • Materials for pouring • Objects too big to be handled by on hand • Objects with holes fitting child's fingers • Objects that can be separated like nail brushes, boxes with lids, blocks with Velcro, magnets and small metal objects • Objects that give an interesting sound when banged together and encourage use of both hands simultaneously	• Objects hanging over hands that motivate slight movement of fingers in Little Room or other environment • Objects placed over or near mouth • Utilize kinematic movements (kicking of feet, movement of one hand, etc.) • Using Support Bench place objects in trays at hands/feet that make noise and have tactile quality • Use trays filled with objects that make noise and have interesting textures such as nuts in shell, beans and hard pasta noodles, metal ball bearings, ping-pong balls, etc. • Things on SPG to scratch, but also later grasp and let go, then later grasp and explore positioned on tray of wheelchair or table or wall • Place object in hand with Buncher while on the Resonance Board or over Support Bench or during feeding • Provide objects on SPG Board with small holes for fingers • Use beans, rice, sand in tub with small cups

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Movement	Example of Observed Behavior	Equipment	Activity
Learning Midline Organization of Hands	Puts hands together Grasps an object Practices stretching and flexing of fingers Turns hands at wrists Bangs himself, adults, and bedding with fists Grasps objects by using all fingers Manipulates own fingers Repeats novel movements Experiments with various ways of grasping Grasps and keeps objects Grasps objects with both hands Releases voluntarily Able to rub nose Grasps with visual, tactile, auditory and/or verbal prompt Reaches with left hand for object to right Reaches with right hand for object lying to left Strokes hand over surface Uses thumb while grasping		for pouring • Provide water-table or sink with utensils for pouring. • During interaction time with adult offer objects using visual, tactile, auditory and/or verbal prompts
Achieving Head Control	Turn head from side to side – Supine Holds head in midline position Turn head from side to side – Prone Lifts head for short periods with Tonic Neck Reflex Prone – lifts head 45 degrees Performs various head movements Lefts head – Supine Displays fine control of head movements	• Resonance Board • Support Bench • Metal bucket • Plastic bucket • Tray with lip • Switch and music source • Objects with interesting auditory quality such as marbles, ping pong balls, nuts in shell, etc. to use on trays or hang in various positions around the head • Objects that have appealing tastes and smells	• Two plastic plates, smaller placed inside larger, are placed under the child's head • Tray or marbles or pingpong balls placed underneath the child's head • Switch attached to music source that turns on when the child lifts his/her head • Various taste/smells may be added to above materials to encourage head movement

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Movement	Example of Observed Behavior	Equipment	Activity
Achieving Head Control	Supine coordinates head and hand movements Tonic neck reflex (TNR) ceases Supine lifts head Coordinates head and hand movements in sitting *Note: Head control items in Functional Scheme tops out at 9-12 months*	• SPG board • Little Room • Sensitar • Harp • Metal/plastic buckets • Bag with rice flour • Balloons blown up and filled with some beans	• Child in prone or supine with metal bucket and plastic bucket placed to either side of head to cause echo when he/she vocalizes – comparing sound • In prone on Resonance Board or Support Bench objects hung near back of the head that create interesting auditory quality • In supine, food morsel or object with interest tactile quality hung near the mouth • Lying on Support Bench with bag of rice flour under his head various materials under hands and feet • Lying in Prone with inflate balloons filled with beans suspended above.
Learning to Sit Unsupported	*Note: Pre-requisite to sitting and standing independently is co-ordination between arm and leg movements both in supine and prone and achieving ability to turn from supine to prone. Development of sitting and standing rely on similar development of arm and leg movement, strength of trunk/core muscles, sense of balance.* Prone: moves arms and legs about simultaneously Supine: thrusts feet against wide of bed or other items	• Net Hammock • Essef Board • Support Bench • Little Room with objects hung along walls • Resonance Board • Position Boards • Interesting objects that have interesting tactile, auditory and vibratory qualities. • Tubs, trays, large containers for placing objects in under hands	• Lying prone and supine on resonance board with objects near hands and feet and head to encourage reaching, simultaneous movement of arm/leg movements. • On support bench where arms and legs can move easily to interact with objects under hands and feet. • Lying or sitting in net hammock with Essef Board at feet for pushing (under,

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Movement	Example of Observed Behavior	Equipment	Activity
Learning to Stand and Walk Independently	Rolls around on floor Prone: pulls up towards stomach Prone: extends one arm to objects within reach Prone: coordinates arm and leg movements Standing on knees and forearms Standing on knees and hands: sways backwards and forwards Standing on knees and arms: lifts head Standing on knees and ands: reaches for an object while transferring weight of body to other arm Prone moves forwards Jumps up and down while held on adult lap Placed upright stands with support Practices to balance With support sits with legs crossed With support sits on haunches Prone: reaches for and pulls objects Sits in a floor chair Without support sits on the floor Sitting coordinates head /arm movements Tries to sit up from lying position Sits up easily Sitting moves from one place to another Lies down from sitting position Rises to kneeling by holding on to furniture or like	• HOPSA Dress • Support Bench • Essef Board • Resonance Board • Trays with lips • Swimming pool • Position Board • Multi-Function Activity Table • Tubs, trays, large containers for placing objects in under feet • Ladder attached to wall	attached to a wall, etc.) • Position boards with objects attached to grasp and let go • Position boards with objects to grasp and explore • Variety of objects that produce various auditory qualities in shallow trays and/or tubs placed under hands and feet • In HOPSA dress with Essef Board under feet for bouncing and standing and practicing balance • Areas of the room set up where child can reach to pull to kneel, stand and cruise

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Movement	Example of Observed Behavior	Equipment	Activity
Learning to Stand and Walk Independently	Rises to kneeling without holding on to anything Crawls Crawls over doorsteps/low objects Rises to standing position by holding on to furniture or like Stands by holding on to something Stands with adult support: initiates walking movements without prompts Walks with support (held by both hands) Walks sideways while holding on to sofa, etc. Walks unsupported in swimming pool Balances while sitting Crawls down from sofa, bed, etc. Sails on bottom or crawls to objects Sitting: rotates upper part of the body Kneels without using hands for support Stands without support Walks with support (held by one hand) Walks a few steps without support (falls easily) Without support rises to standing Walks with support by holding an object in hand Climbs up on sofa, etc. Walks over doorsteps while holding to frame Walking: coordinates arm and leg movements		

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References

Neilsen, Lilli, *Early Learning Step by Step*, Chapter 4, pps. 63-93

Neilsen, Lilli, *Functional Scheme, pp. 10-21 and 30-34*

Neilsen, Lilli, *FIELA Curriculum*

Notes:

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Figure 19 TSBVI logo.

This project is supported by the U.S. Department of Education, Special Education Program (OSEP). Opinions expressed here are the authors and do not necessarily represent the position of the Department of Education.

Figure 20 IDEAs that Work logo and OSEP disclaimer.