This powerpoint covers the following topics:
Participants will be able to:
1. Share basic information about Active Learning with someone else
2. Identify the role of play in learning

It will take approximately 45-60 minutes to present.
Welcome to Active Learning Equipment

Do you want to learn what the various pieces of equipment associated with Active Learning can be used for?

Would you like to understand why certain pieces of equipment should be purchased from an authorized dealer rather than be made at home?

Would you like ideas for equipment that can be made at home?

In this session all of this will be discussed, and you will be able to view videos showing the use of many of these devices.

The content included in this material can be found along with other information on the Active Learning Space website at www.activelearningspace.org.

Do you want to learn what the various pieces of equipment associated with Active Learning can be used for?

Would you like to understand why certain pieces of equipment should be purchased from an authorized dealer rather than be made at home?

Would you like ideas for equipment that can be made at home?

In this session all of this will be discussed, and you will have opportunities to view videos showing the use of many of these devices.

The content included in this material can be found along with other information on the Active Learning Space website at www.activelearningspace.org.
When you have completed this module you should be able to:

• Identify the major pieces of “perceptualizing aids” or equipment designed by Dr. Nielsen;

• Compile directions for making various types of equipment for use in Active Learning; and

• Learn how to use various pieces of equipment (both things you buy and things you can make) with each student to meet his/her needs in developing motor, cognitive, social, emotional and perceptual skills.
Section 1
Overview of Active Learning Equipment
If you are using flipped learning for this session, you may assign participants to view all the pages on Active Learning Space showing different things they can make before coming to the session.

Though lengthy you will not need to spend a great deal of time viewing each slide and the few videos are short.

Dr. Nielsen designed various "perceptualizing aids" or equipment to facilitate activity in individuals with multiple disabilities.

A key factor in the development of these perceptualizing aids was to allow the learner to be an active participant when positioned in supine (on back), prone (on stomach), in sitting, or standing.
Some pieces of Active Learning equipment or “perceptualizing aids” can be made at home such as Position Boards and Resonance Boards.

There are also smaller devices that can be made cheaply and take up very little space.

The Active Learning Space website includes many downloadable directions for making these devices.

We encourage you to download and save directions as you go through this course.

You may want to share this section of the Active Learning Space with your participants at http://www.activelearningspace.org/equipment/make-your-own-equipment/overview-make-your-own-equipment.
Other things you can make include:

- Activity Wall
- Buncher
- Echo Bucket
- Elastic Board
- Mobiles
- Pegboard Books
- Vests, Aprons, Cummerbunds, Gloves, Scarves
Section 2
Resonance Board
The child will develop spatial awareness by learning about the limited “room” which the Resonance Board represents.

Motivates child to use space outside of Resonance Board and begin to move from one place to another.

Provides tactile feedback whenever the child moves or causes an object placed on it to move.

Encourages the child to initiate more independent movements.
The Resonance Board is made of 4 mm (5/32 inch) cabinet grade birch plywood and is typically sized 4 feet X 4 feet. A wooden strip approximately 2 cm or ¾ inch thick is attached to the underside. It is very important to apply the strip along the edge to elevate the main part of the board slightly off the floor.
Resonance Board

Weight of the child causes a little bending of the board downwards, which allows objects to roll back to the child when he moves.

Air gap insulates and lifts the learner off the cold floor.

Another plus is that children and adults will not get as tired while sitting on it.

The weight of the child causes a little bending of the board downwards, which allows objects to roll back to the child when he moves.

The air gap insulates and lifts the learner off the cold floor.

Another plus is that children and adults will not get as tired while sitting on it.
Resonance Board

When introducing the child to the board:
1. adult sits on board with child in lap
2. begin to make small sounds on board (gradually becoming louder), so child becomes aware of it
3. slowly move child down onto board
4. when you are sure child is secure and at home on board, start putting objects under hands, around body, under feet, and under head of child.

When introducing the child to the board, the adult should sit on the board with the child in her lap.

Begin to make small sounds on the board (gradually becoming louder), so the child becomes aware of it.

Slowly move the child down onto the board.

When you have made sure that the child is secure and at home on the board, start putting objects under the hands, around the body, under the feet, and under the head of the child.
Observe the reactions of the child to determine how far to go the first time. Is the child is able to lie alone on the board, and how long does he play on it?

The Resonance Board can be used with a variety of other equipment including the Little Room, Support Bench, HOPSA Dress and Essef Board.

To learn about using it with the Little Room review Reaching and Spatial Orientation. You may want to share this page with your participants.
Resonance Board

Let’s take a look at two children using a Resonance Board.

Jack and Cindy Play on the Resonance Board
Kamryn Plays on the Resonance Board

Share these two videos with your participants. Take some time afterwards to get comments and feedback.

What did they see each child doing (skills, wait time, etc.)?
What did each child seem to be most interested in?

Jack and Cindy Play on the Resonance Board <https://library.tsbvi.edu/Player/18396> - approximately 1 minute

Kamryn Plays on a Resonance Board <https://library.tsbvi.edu/Player/18397> - approximately 2 minutes
These directions are included in the Supplemental handouts. You may want to share them with your participants. It might be good to mention that recruiting Scouts, grandads, civic groups, woodworking classes or others to build these is an option. Just make sure they don’t stray from the design instructions and try to “over engineer” the boards. They are SUPPOSE to bind under the child’s weight.

You may also make a Resonance Board. Be sure to follow Dr. Nielsen’s plans precisely.

Word document with directions to make a Resonance Board.
PDF document with directions to make a Resonance Board.

Sally Cameron of Nova Scotia has also shared her plans for a folding Resonance Board.
Download the step-by-step instructions to make your own folding resonance board.
Resonance Boards and plans can be purchased from Lilli Works. You can download a Product Catalog or view their pricing sheet on www.lilliworks.org.

- Resonance Board 48” X 48”
- Resonance Board, Little Room-Sized 40”x28”
- Folding Resonance Board 4’ X 4’ that folds fully in half to 2’ x 4’.
- Resonance Board Plans Only
There is no limit to the things you can make or invent to use in Active Learning. Just make sure that you know what you are trying to achieve with your design. Consider the learner’s preferences and skills. Be sure to factor in safety and check daily for any damage.

The next series of slides shows some of these things you can make!
Activity Walls allow the student to work with their hands while in various positions such as sitting, kneeling, or standing. They are especially good to use with a HOPSA Dress or Resonance Board.

Check out the Activity Wall on the Active Learning Space website.

Large position boards that are secured to a wall.

Activity Walls can be made from pegboard or Velcro board.
Buncher

Buncher is an elastic device that allows you to attach objects in the child’s hand. Children with visual impairment and motor issues, may be unable to pick up an object again once they let go of it. Repetition of grasping and letting go leads to grasping and holding which is achieved with the use of a Buncher.

A Buncher is an elastic device that allows you to attach objects in the child’s hand.

Children with visual impairment and motor issues, may be unable to pick up an object again once they let go of it.

Repetition of grasping and letting go leads to grasping and holding which is achieved with the use of a Buncher.

The user may grasp and let go whenever he wishes, repeat the activity as many times as needed, and experiment with the duration of the grasp and the intervals between each repetition.
The Buncher also lets the user’s hand touch the surfaces of objects, allowing her to experience the tactile qualities of items.

It can be used to hold a variety of things like a spoon, toothbrush, or hair brush.

Consider giving a Buncher with a spoon to a child while he is being feed by an adult with another spoon.

Tooth brushing might also be another time when supplying the child with a vibrating toothbrush in a Buncher could be used while you brush his teeth.
You may want to share directions with participants that are included in the Supplemental Pages or you may want to have them download the directions on how to make a Buncher.

*Download directions in Word -*
http://www.activelearningspace.org/images/downloads/Buncher_Tips_from_Active_Learning_Space.docx

*Download directions in PDF -*
The Echo Bucket is a metal bucket attached to a chain so that it is suspended upside-down from a strong support. Holes are made around the rim and objects are tied to it with elastic.

Child lies on a Resonance Board with the bucket hanging overhead and interacts with the objects, making sounds which echo. This encourages the child to make more sounds.

Goals are: to encourage reaching and moving the objects to produce sounds and listen to his own voice if he vocalizes in response to the sounds he makes.

Speech and auditory training works on skills like increased vocalizations, vocal pitch and rhythm play, and sound imitation.
Echo Bucket

Make sure all the objects and the bucket are securely attached.
If a child has any type of hearing impairment it is important to find objects that make sounds he might be able to hear.
Associating objects with their specific sounds is an important listening skill.

Make sure all the objects and the bucket are securely attached, especially if the child has a lot of strength and can pull. Always make sure any equipment is safe before using with a child.

If a child has any type of hearing impairment it is important to find objects that make sounds he might be able to hear.

Associating objects with their specific sounds is an important listening skill.
You may want to share these directions which are in the supplemental handouts with your participants or have them download the directions for making an Echo Bucket:

Directions for an Echo Bucket (Word) -  
http://www.activelearningspace.org/images/downloads/Echo_Bucket.docx

Directions for an Echo Bucket (PDF) -  
Some children benefit from the use of a Mobile. Although not as properly equipped as a Little Room, these provide an easy way to hang items so that a child can independently manipulate the objects with hands, feet, or mouth.

PVC Mobiles are easy to make. Select materials with interesting tactual qualities and auditory feedback based on the child’s individual preferences, available sensory input (vision, taste, smell), and developmental motor skills.
You may want to share this supplemental handout or have participants download directions for how to make a PVC mobile.

Download directions to make a PVC mobile (Word) -
http://www.activelearningspace.org/images/downloads/PVC_Mobile_Tips_from_Active_Learning_Space.docx

Download directions to make a PVC mobile (PDF) -
Another type of mobile is a Tabletop Mobile.

This mobile was designed to allow a child who may also be seated in a wheelchair to have access to various objects for exploration, when he does not bring hands into midline.

The tabletop mobile can be placed to either side of the wheelchair on a table at the level the child can easily reach.
Mobile - Tabletop

You may want to take time to download the directions for making a Tabletop Mobile.

Directions for Tabletop Mobile (Word)
Directions for Tabletop Mobile (PDF)

You may want share this supplemental handout with your participants or ask them to download the directions for making a Tabletop Mobile.

Download Tabletop Mobile directions (Word)
Download Tabletop Mobile directions (PDF)
There are many kinds of trays and boards to make such as: Elastic Boards (picture), Bell Boards, Door Stopper Boards.

The learner must independently explore and manipulate these boards.

The learner is encouraged to reach out and interact with objects, finding out about their properties, develop motor skills, and build cognitive concepts such as cause and effect.

Make sure to match the design to meet your learner’s unique preferences, needs, and skills.
You may wish to download directions for making an Elastic Board.

*Directions for Elastic Board Word Format*

*Directions for Elastic Board PDF*

You may wish to share this supplemental handout with participants or have them download directions for making an Elastic Board.

*Download Elastic Board Directions Word format* - http://www.activelearningspace.org/images/downloads/elastic_board_Tips_from_Active_Learning_Space.docx

Trays and Boards

**Bell Board** (picture) is made of pegboard and has bells and castanets attached with elastic, which enables the learner to manipulate and explore the items, while they remain in a fixed location.

**Door Stop Board** is made with door stoppers. They are easy for the child to move and they make a great sound!

The **Bell Board** is made of pegboard and has bells and castanets attached with elastic, which enables the learner to manipulate and explore the items, while they remain in a fixed location.

**Door Stop Board** is made with door stoppers that can be purchased at any hardware store. They are easy for the child to move and they make a great sound!
Wooden boards and trays can be made in a variety of ways that are interesting and accessible to different levels of fine motor skills and exploration strategies.

Evaluate items for:
• sensory characteristics
• skill(s) needed to manipulate it
• items that can be compared to others (size, weight, etc.)

A Door Stop Board is pictured.

Wooden boards and trays can be made in a variety of ways that are interesting and accessible to different levels of fine motor skills and exploration strategies.

Evaluate items for:
• sensory characteristics – visual, auditory, tactile, olfactory, and taste.
• the skill needed to manipulate it – pushing, batting, grasping, pulling, scratching, taking apart, putting together.
• items that can be compared to others (size, weight, etc.)
A board requiring skills that are developmentally too high or low for a child will not promote active learning and may result in limited or stereotypical activity or no activity at all.

Find appropriate items to be attached to the board.

The picture shows a Tipping Tray made by gluing a dowel to the underside of a tray.

Make sure to find appropriate items to be attached to the board. Do not use any items that pose a choking hazard, that are easily broken, or that have sharp edges. The builder is responsible for the safety of the child using the equipment.
An Activity Belt is for children who are very active and/or reluctant to sit still and explore objects.

Find or rework a belt with grommets where objects can be attached to it. Buckle the belt in the back so the child cannot easily remove it.

This also can give the child something to play with when they have to be seated such as long rides to and from school or in the waiting room at the doctor's office.
**Cummerbund**

*Cummerbunds* are made using any type of cloth or Velcro cloth, wrap around the waist, and go up to about the armpits. Many children have very limited use of their hands and are not able to finger, grasp, bat or shake objects. This gives the ability to make things happen on her own by placing objects directly on the body or trunk of the learner.

*Cummerbunds* [http://www.activelearningspace.org/equipment/make-your-own-equipment/vests-aprons-gloves-scarves-belts] are easily made using any type of cloth or Velcro cloth and wrap around the waist and go up to about the armpits.

Many children have very limited use of their hands. They may not be able to hold objects in their hands or be able to bat at or shake the objects.

Give a child like this the ability to make things happen on her own by placing objects directly on the body or trunk of the learner.
Gloves are made from fingerless gloves with squares of Velcro sewn onto them. Attach items that the learner might enjoy exploring with his mouth, lips, teeth, and tongue. Any hand or finger movement easily cause beads to move. A good way to redirect a child who engages in self-injurious behaviors such as biting or chewing on hands or arms.

Gloves are made from fingerless gloves with squares of Velcro sewn onto them. Attach items that the learner might enjoy exploring with his mouth, lips, teeth, and tongue. If he has some hand and/or finger movement, beads are easily moved. Gloves are a good way to redirect a child who engages in self-injurious behaviors such as biting or chewing on hands or arms. When they try to engage in these behaviors they find toys to play with instead.
A Vest is another thing that can be easily made.

A child who can’t move his arms away from the chest and stomach area can find things easily where the hands are normally placed.

The female side of Velcro is sewn onto a vest and the objects have the male side of Velcro attached to them.

As the child develops more hand and arm control and strength the objects are easily pulled off by the child.....another great game.
The **Wrist Scarf** is made from a strip of Velcro that is used to form a bracelet and shoelaces are attached to it.

In the image shown here, small bells are attached to each shoelace, but other items (like beads) could be used instead. This would be good for learners who are just beginning to move their hands and arms.
Take about 10-15 minutes for this activity and ask participants to work alone or in pairs. If you are using flipped learning you may want to assign this as homework.

Now that you have seen a variety of things that you can make, what will you make?

Why did you choose that item?

What are some of the preferences of your child that you will need to consider?
Credits

This content was developed by Texas School for the Blind & Visually Impaired Outreach Program and may not be used without their express permission.

This content is based on the Active Learning Space website, collaboratively developed by Penrickton Center for Blind, Perkins School for the Blind and Texas School for the Blind and Visually Impaired. Special contributions of content and images of Active Learning Instruction comes from Narbethong State Special School in Australia.

All content is based on the original work of Dr. Lilli Nielsen of Denmark. Our thanks to her family and the staff at Byhaveskolen, Svendborg, Denmark for making her work available to educators world-wide.

Our special thanks to the children, parents, and educators who contributed photos illustrating the Active Learning approach at school and at home.

Additional funding was provided by the Texas Low Incidence Disabilities Network and Statewide Leadership Services for the Blind and Visually Impaired.

"This project is supported by the U.S. Department of Education, Office of Special Education Programs (OSEP). Opinions expressed herein are those of the authors and do not necessarily represent the position of the U.S. Department of Education."