

Experiential Learning: Activities for Concept Development



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Experiential Learning: Activities for Concept Development

Activities in this manual are designed to help children learn through experience. These experiences should be meaningful, fun, and educational. They are meant to be created by you and facilitated by the activities. For the children, it really is about interacting with you and the materials used in the activities. It really is all about the experience.

Six developmental areas are addressed in this manual: cause and effect, hand-eye coordination (auditory-hand coordination), motor development, object permanence, sensory awareness, and spatial awareness. These are not the only areas where children can learn through experience. These concepts and skills, however, are six of the primary areas that need to be promoted in infants and young children with visual impairments. For your reference, here are brief definitions of these developmental areas:

Cause and effect – the understanding that one action or event causes another

Hand-eye coordination – the ability to use visual input to control and guide the movement of the hands to perform a task

Auditory-hand coordination – the ability to use sound localization skills to control or guide the movement of the hands to perform a task

Motor development – the growing ability to control and engage in fluid, purposeful bodily movements using large and/or small muscles

Object permanence – the notion that when an object is out of the realm of immediate experience through sight or touch, the object still exists

Sensory awareness – the development of sensory channels through opportunities to experience and explore the developing senses of touch, hearing, smell, sight, and taste

Spatial awareness – the understanding of where things are in space and how they relate to one another; closely related to object permanence

Each section contains a brief overview of the skill or concept being addressed. This overview is followed by three suggested activities. The activities are meant to provide a range of suggestions, with a beginning, intermediate, and more advanced activity for each area. The beginning level activity is Activity 1; the intermediate level activity is Activity 2; and the more advanced level activity is Activity 3.

The literature on each subject was reviewed, and when possible, suggested materials and activities are based on research. This was not always possible. When research was not available, we designed the activities using creativity and professional judgment. The suggested activities are just that, suggestions. You are encouraged to be creative—incorporate new activities you read about in journals and books as well as new and preferred toys. Use these suggestions and your creative ideas to build routines similar to those suggested in the APH Sensory Learning Kit. When selecting activities and toys, however, always consider safety first.

The service provider or parent must provide the toys and other materials to be used in each activity. These items should be preferred by and appropriate for the specific child. Such items include toys that produce sound, a mobile or play gym, and objects that can be suspended from the mobile or play gym. See the Appendix for a list of suggested materials/items that are suitable for the activities in this guidebook.

While this product is designed for children, ages birth to 3, who are blind or visually impaired, the activities are also appropriate for children of any age working on the aforementioned six developmental areas. This includes children with multiple disabilities. **All activities are meant to be completed with the supervision of an adult. The adult is necessary for guiding the child's experiences and ensuring the child's safety.**

As you complete the guidebook activities, have fun bringing new learning experiences to the child with whom you're working. Make sure to tell the child what you are doing as you introduce a toy, bring it to touch her hand, move it to the mobile, and so on. Think about things from the child's perspective as you plan activities. Get creative! And remember, for children, it really is all about the experience.



Cause and Effect

Cause and effect is an important concept and provides a foundation for discovery. The concept is complex for infants because concepts we take for granted are not obvious. Infants do not innately know that one action causes another action. For instance, an infant knows nothing that makes it obvious that an object will fall *down* when you push it off a table rather than falling *up*. Most infants learn the cause and effect concept within the first 18 months (Ramey & Ramey, 1999). Still, a study by Leslie and Keeble (1987) suggests that infants as young as 27 weeks may have a beginning understanding of the basics of cause and effect and may have a fairly complex understanding of the concept by 3 years. However, you should not become alarmed if your child is taking longer to learn this concept. These are the youngest suggested ages, and it is very common that children with visual impairments arrive at understanding slightly later due to different methods of information



intake. Nonetheless, an understanding of cause and effect is an important building block for solving the “puzzles” of the world and conducting new and exciting “baby experiments” in infancy and early childhood.

The following activities are merely suggestions of ways to facilitate learning this concept with your child. As always, get creative and remember that you are key to the learning process. You are the facilitator and educator. And this is an opportunity to teach your child exciting new concepts like cause and effect.

Cause and Effect: Activity 1

Suggested Materials

- Bell or toy with a bell that easily produces a sound

Goals

- To establish the concept of cause and effect
- To encourage auditory-hand coordination

Start by getting the child’s attention. Introduce the toy and the sound it makes. Place the child’s hands on the toy. Using hand over hand, with the child’s hand directly on the toy, explore the toy and go through the motions to produce the noise. Talk to the child while going through the activity saying things like, “When you shake the bell/toy, it makes a sound.” If the child will play with or explore the toy independently, allow her to do this for a while. Then take the toy from the child and suspend the toy above on a mobile or play gym. Make sure the toy is within reach, maybe even lightly touching the child.

Make sure you have the child’s attention by touching her hand. This will also, hopefully stimulate the child to be prepared to use the tactile sense to touch. Manipulate the toy so that it makes noise, and then guide the child’s hand to the toy. Using hand over hand, touch the bell or toy and push it so that it makes noise. Repeat this, using a hand over hand prompt, several times. Allow the child to try this on her own. Decrease prompts with time.

When the child can produce the sound independently, repeat the activity with additional toys. Various similar toys can be draped along the mobile that produce a variety of sounds creating “baby chimes.”

Another variation on this activity is to experiment with the volume of the sound dependent on the action that causes the sound. For instance, if I tap the bell lightly, it makes a small, short tinkle. If I hit the bell hard, it makes a louder ring that sounds for a longer period of time.

Alternatively, this same activity could be performed using a toy that lights up if your child has residual vision. As your child’s coordination and sensitivity improves, you could also try the activity using a toy that vibrates or produces another tactile cue rather than an auditory cue.

Cause and Effect: Activity 2

Suggested Materials

- Squeak toy that easily produces sound

Goals

- To establish the concept of cause and effect
- To encourage fine motor skills

Start by getting the child’s attention. Introduce the toy and the sound it makes. Place the child’s hands on the toy. Using hand over hand (or hand under hand so as not to pinch the baby’s fingers), squeak the toy. With the child’s hand directly on the toy, explore the toy and go through the motions to produce the noise. If the child will play with or explore the toy independently, allow her to do this for a while. Then take the toy from the child and suspend the toy above on a mobile or play gym. Make sure the toy is within reach, but not touching the child.

As in Activity 1, make sure you have the child’s attention by touching her hand. This will also, hopefully stimulate the child to be prepared to use the tactile sense to touch. Squeak the toy so that it makes noise, and then guide the child’s hand to the toy. Give the child a bit of time to explore. Bring the child’s hand to the toy and, as you did before, work with the child to squeak the toy and make a sound. Repeat this, using a hand over hand

prompt, several times. Allow the child to try this on her own. Decrease prompts with time.

When the child can do this activity independently, you can suspend a variety of squeaky toys and bell toys. Position the mobile so that the hang-down toys can be accessed by both baby's hands and feet. Incorporating feet allows for some gross motor work, too. Allow the child to try to cause sounds with different hand and feet stimulations.

Cause and Effect: Activity 3

Suggested Materials

- Squeeze toy that produces a gush of air (or substitute a toy that makes noise when squeezed)

Goals

- To establish the concept of cause and effect
- To encourage fine motor skills

Start by getting the child's attention. Introduce the toy and squeeze it so that a light puff of air blows onto the child in a fun way. Place the child's hands on the toy. Using hand over hand, with the child's hand directly on the toy, explore the toy and go through the motions to produce the puff of air. The air can blow onto the face, leg, arm, foot, belly, etc. The puff should be a pleasant sensation—something the baby finds funny and exciting, not something unpleasant.

If the child will play with or explore the toy independently, allow her to do this for a while. Then take the toy from the child and suspend the toy above on a mobile or play gym. See if the child independently searches for the toy. After a brief period of time, if the child has not found the toy, guide the child's hand to the toy. If the child does not automatically begin playing with the toy independently, use hand over hand to go through the motions of producing the puff of air. Decrease

prompts until the child plays with the toy independently. This will most likely take multiple sessions. Allow the child to play with the toy for a time.

Once the child plays with the toy independently, the concept of object permanence can be reinforced by moving the toy to a different position on the mobile. Allow the child to search for the toy, giving physical, tactile, and verbal prompts as necessary.

Hand-Eye Coordination

This section includes an auditory component for auditory-hand coordination.

This section is designed primarily to work on hand-eye coordination in children with remaining functional vision. However, all of these activities contain an auditory component so they can also be used to encourage sound localization skills and get children reaching for sounds.

Hand-eye coordination is the ability to perform tasks by using visual input to direct the movement of the hands. This is an important part of prehension. Prehension is basically the controlled movement of the hand to an object, which is grasped for a purpose (Shim, 2004). Some researchers indicate that prehension is affected by “the onset of reaching, the ability to control gaze, balance the head, and sit with support” (Bertenthal & Von Hofsten, 1998). Hofsten and Fazel-Zandy (1984)



emphasize that prehension is typically a skill that is strongly correlated with vision, that vision is used to locate the desired object in space as well as to adjust the hand to the proper orientation for grasping. This does not mean that children with reduced functional vision or no vision do not obtain this skill. It just means that the concept may need a little more teaching since the visual-motor pursuit reflex may not be as strong.

Some studies on typically sighted infants have worked with children as young as 4 weeks (White, Castle, & Held, 1964). The typical age for typically sighted children to be advanced enough for successful reaching is around 4 months (Bertenthal & Von Hofsten, 1998; White, Castle, & Held, 1964). As with other activities in this manual, the ages are only listed as a rough guide. Some children may accomplish tasks sooner, yet many will take a little more time to understand the concept and complete the activity. This is completely normal, especially if your child is working to overcome more severe or multiple disabilities. The most important thing is to enjoy the time with your child as you work through these activities and the many more activities you'll read about in other resources and invent yourself. The time spent in such activities is not only a time for working on new skills, but also a time for bonding.

Hand-Eye Coordination: Activity 1

Suggested Materials

- Toy with easily produced sound or multi-color pom pon

Goal

- To encourage auditory-hand or hand-eye coordination

Start by getting the child's attention. Introduce the toy to the child and tell her about the sound it makes. Bring the toy to about 12 inches from the child's face, clearly in the direct line of sight. Shake the toy to make the noise. Encourage the child to reach toward the toy using the least intrusive prompt possible. Then bring the toy within 5 inches of the bridge of the child's nose and make the noise again. Encourage the child to reach for the toy using the least intrusive prompt possible.

Hand-Eye Coordination: Activity 2

Suggested Materials

- Toy with easily produced sound

Goal

- To encourage auditory-hand or hand-eye coordination

Start by getting the child's attention. Introduce the toy and the sound it makes. Repeat the steps in Activity 1. When the child is consistently reaching for the toy at 5 inches from the bridge of the nose and at a further distance such as 12 inches, move the toy to the side. Make noise with the toy and use the least intrusive prompt possible to illicit a reach for the toy from the child. Try this activity on both sides of the child. When the child will reach for the toy with minimal prompting on the sides at a close distance, move the toy farther away. Attach the toy to a mobile or play gym on one side and then to the other, encouraging reach on both sides.

Hand-Eye Coordination: Activity 3

Suggested Materials

- Toy with easily produced sound

Goal

- To encourage auditory-hand or hand-eye coordination

Start by getting the child's attention. Introduce the toy and the sound it makes. Place the toy at the child's midline. Get the child's attention. Encourage the child to reach for the toy. Move the toy to the side and encourage the child to reach for the toy. Move the toy to the other side and encourage the child to reach for the toy. Then move the toy back to the center and get the child's attention. In this activity, you are going to encourage predictive reaching. Get the child's attention and then swiftly move the toy to one side or the other. In order to get to the toy quickly after it arrives, the child will have to follow the motion of the toy and predict where it will arrive. The child is reaching for the spot she predicts the toy will land rather than the exact spot where she sees or hears it. Prompt the child to reach for the toy using collateral reaching, or using the hand that is on the same side as the toy as opposed to reaching across the body.

This is a complex activity and may take quite some time to achieve the desired result. In the meantime, have fun playing and working toward the goal.

Motor Development

Motor development refers to the growing ability to control and engage in fluid, purposeful bodily movements.

In very young children, the emphasis is usually on gross motor movement, or large movements (e.g., crawling, toddling, or reaching), which often involve the entire body, rather than fine motor movement, or small precise movements (e.g., correctly holding a spoon or painting).

Many researchers emphasize the large role that vision plays in motor development. When vision is reduced or absent, many researchers find that children develop motor skills out of sequence and in a delayed fashion. Children with visual impairments may sometimes even develop more advanced skills before their precursors (Adelson & Fraiberg, 1974; Fraiberg, 1977; Jan, Freeman, Scott, & Wilmot, 1977; Sonksen, Levitt, & Kitsinger, 1984; Prechtl, Cioni, Einspieler, Bos, & Ferrari, 2001;



Levtzion-Korach, Tennebaum, Schnitzer, & Ornoy, 2000; Ferrell et al., 1990). Your child most likely can and will learn all the same skills; she may just need to be directly taught since incidental learning will be reduced.

Motor development is closely tied with other skills. A child will be more likely to make gains in motor development if she is interested in exploring the environment. An understanding of object permanence will also entice children to develop motor skills—as they search for objects in their environment that may no longer be within direct contact, but they know still exist (Hatton, Bailey, Burchinal, & Ferrell, 1997). The more a child is interested in exploring the environment, the more she will use those muscles to seek out interesting things from the environment.

As usual, these listed activities are only suggestions to serve as a springboard. Get your child moving and exploring. She is constantly developing new skills and learning. Keep in mind, if your child receives physical therapy (PT) or occupational therapy (OT) services, consult with your child's service provider. The PT or OT should be able to help you design experiential learning activities that would be most beneficial to your child.

Motor Development: Activity 1

Suggested Materials

- Satin toy

Goals

- To encourage motor development
- Bringing hands to midline

This is definitely a beginner activity though children who have already developed the skill of bringing hands to midline and using both hands in conjunction may still enjoy and benefit from such activities. Introduce the toy to the child as you suspend it from a mobile or play gym. Hang the toy just above the child so that it can be reached easily when the child brings her hands to midline. This activity will work best if the suspension device has some give to it. Get the child's attention by rubbing the toy against the child's belly and chest. Allow the child time to react to the sensation. See if the child spontaneously reaches for the toy after it has made contact with the belly and chest. If not, prompt both of the child's hands to the toy. The child may have a dominant hand with which she prefers to explore the toy. This is fine and normal, but as you play, continue to encourage both hands to explore the toy at midline.

Motor Development: Activity 2

Suggested Materials

- Toy with easily produced sound and appealing texture

Goals

- To encourage motor development
- Bringing hands to midline
- Getting feet and legs involved

For this activity, ensure that the hang-down toys are positioned on a mobile or play gym so that they land at the middle of the child's body—just above the bellybutton. Get the child's attention by touching hands and feet to awaken them. Then gently rub or tickle the child's hands and feet with the toy. You're trying to evoke movement in the child's hands and feet by doing this. Demonstrate the noise that the toy makes for the child. Make sure it's a sound that the child finds appealing. Show the child how she can produce the sound and explore the texture of the toy by reaching for it and manipulating it with both her hands and feet. Decrease physical prompting as possible, but continually encourage your child to seek out the toy by tickling or rubbing her with it and producing noise with it.

Motor Development: Activity 3

Suggested Materials

- Toy that vibrates when pulled or squeezed

Goal

- To encourage motor development

The child who is able to perform this activity independently will most likely be older. Depending on the toy, the child may also need more strength and dexterity. Until your child develops to that point, you are a vital part of play. You are the facilitator who can show your child what she will be able to do one day.

Make sure the toy is securely attached to a mobile or play gym and suspended within easy reach of the child. Introduce the toy to the child. Activate the vibration of the toy and let the child feel the vibration with different parts of her body. Allow the child time to explore the toy. Using hand over hand, allow the child to activate the vibration of the toy. Gradually decrease the prompts used, but always be an active member of your child's experiential learning time and supervise for the sake of safety.

Object Permanence

Object permanence is the notion that when an object is out of the realm of immediate experience through sight or touch, the object still exists. Typically sighted infants may develop the skill by 8 months (Munakata, McClelland, Johnson, & Siegler, 1997). Since a child with visual impairments does not see where the toy goes when it is dropped, and does not catch a glimpse of a favorite toy partially hidden behind the toy box, development of this concept may occur later and should be explicitly taught. While the literature suggests that sound cues alone, without an understanding of object permanence, can provoke reaching (Ross & Tobin, 1997), it stands to reason that the sooner your child understands this concept, the more likely it will be that she will search for items that go missing. This promotes curiosity and exploration of her environment.



One method of promoting this idea to your child involves the introduction of an object followed by full and partial concealment—tactually. This is the same way that sighted infants learn the concept, only we are bringing it to the hands rather than the eyes. Predictable locations for objects help to facilitate successful exploration and understanding that the object has not disappeared; it has only moved! Sound can also help on the road to understanding. If a child can no longer see or feel the object, but she can hear the toy making the same noise it was when she was holding it, (though this is another difficult concept), it can help her understand that it has not ceased to exist—only gone somewhere else. This concept is not an easy one for an infant or very small child to grasp, so direct instruction and repetition are keys to understanding! Additionally, talk to your child, even when you think she is too young to understand. Tell her where you're taking things (e.g., nap time is over, time to put the blanket in the closet; you finished your food, your empty bowl goes in the sink).

On occasions when you allow your child moments of free play with toys on a mobile, positioning the toys in the same place time after time will help to develop the concept of object permanence. Though the toys are not directly touching her, a little reaching and searching proves they still exist.

Object Permanence: Activity 1

Suggested Materials

- Toy with nice texture and easily produced sound

Goals

- To establish the concept of object permanence
- To encourage auditory-hand coordination

Start by getting the child's attention. Introduce the toy and the sound it makes. Place the child's hands on the toy. Using hand over hand, with the child's hand directly on the toy, explore the toy and go through the motions to produce the noise. If the child will play with or explore the toy independently, allow her to do this for a while. Then take the toy from the child and suspend the toy above on a mobile or play gym. Make sure the toy is within reach, but not touching the child. Make sure you have the child's attention by touching her hand. This will also, hopefully stimulate the child to be prepared to use the tactile sense to touch. Manipulate the toy so that it makes noise, and then guide the child's hand to the toy. Do this several times, cuing the child by touching her hand before each time. After several repetitions, manipulate the toy to cause sound and see if the child will search for the toy on her own.

In infants and very young children, search patterns are not organized or well developed, so placing the toy in a consistent place each time the game is played will help the child to find it.

As the child plays this game on subsequent days, provide fewer and less intrusive cues. After the child can consistently find the object suspended above her, move the toy to a different place (her side, for example). The object should always be easily accessible, but should not be touching her—forcing her to search for it. After the child is successful with this toy, try the same activity with different toys, in different locations. Help the child to realize that all objects still exist when they are not touching her—the toy, the room, and the time of day do not matter.

Object Permanence: Activity 2

Suggested Materials

- Toy that easily produces sound
- Blanket with a distinctly different texture than the toy

Goals

- To establish the concept of object permanence
- To encourage auditory-hand coordination

Start by getting the child's attention. Introduce the toy and the sound it makes. Place the child's hands on the toy. Using hand over hand, with the child's hand directly on the toy, explore the toy and go through the motions to produce the noise. If the child will play with or explore the toy independently, allow her to do this for a while. Then take the toy from the child and suspend the toy above on a mobile or play gym. Drape the blanket over the top of mobile so that it partially covers the toy. Make sure the toy is within reach, but not touching the child.

As in Activity 1, make sure you have the child's attention by touching her hand. This will also, hopefully stimulate the child to be prepared to use the tactile sense to touch. Manipulate the toy so that it makes noise, and then guide the child's hand to the blanket that covers part of the toy. Give the child a bit of time to become acquainted with the blanket, then slide the child's hand across the blanket (keeping constant contact) to the part

of the toy that is not covered by the blanket. Repeat this, using a hand over hand prompt, several times. Allow the child to try this on her own. Decrease prompts with time. When the child can do this activity independently, drape the blanket so it covers the entire toy. Then, encourage the child to search under the blanket to find the toy in the same manner described above—repeating the activity many times.

Object Permanence: Activity 3

Suggested Materials

- Preferred toy

Goals

- To establish the concept of object permanence

Start by getting the child's attention. Introduce the toy and the sound it makes. Place the child's hands on the toy. Using hand over hand, with the child's hand directly on the toy, explore the toy and go through the motions to produce the noise. If the child will play with or explore the toy independently, allow her to do this for a while. Then take the toy from the child and suspend the toy above on a mobile or play gym. See if the child independently searches for the toy. After a brief period of time, if the child has not found the toy, guide the child's hand to the toy. Allow the child to play with the toy for a time. Then, move the toy to a different position on the mobile. Once again, see if the child will independently search for the toy. If not, guide the child's hand to it. Continue this activity, moving the toy to a new location on the mobile and later, to the ground around the child. Since before, we used a continuous placement when the object was moved, we are now trying to drive home the concept that if it's not here, it

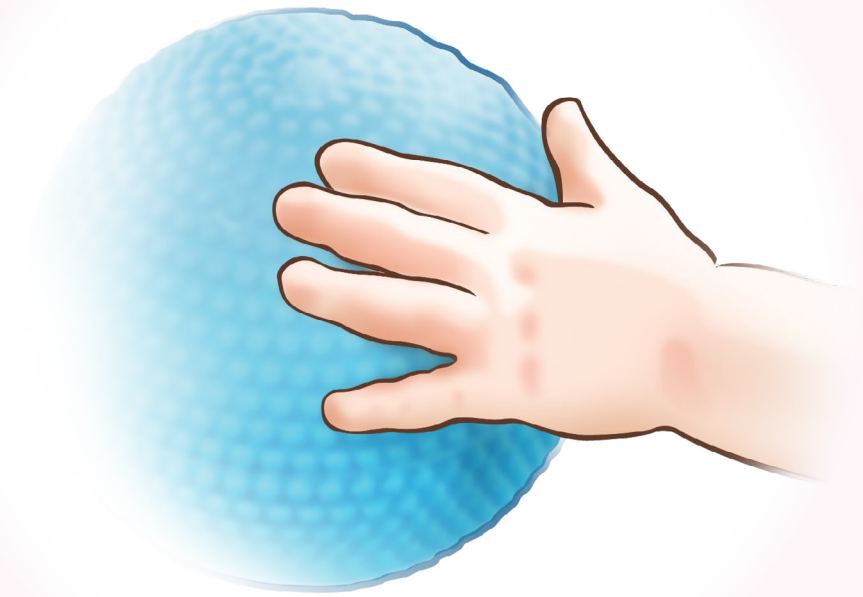
might be in the other place as before. We are taking it one step further though, trying to explain, if it's not here or on the other place, it's still somewhere.

Sensory Awareness

Sensory awareness refers to presenting opportunities for children to experience and explore their ever-developing senses such as touch, hearing, smell, and taste.

While babies are born with their basic sensory system developed, this sensory system becomes more complex and develops over time through experience and maturation (Honig, 2001). Developing awareness of these other sensory channels becomes even more important when a child has a visual impairment or is blind.

To infants and young children, the world is full of mystery. Common, everyday occurrences are puzzles waiting to be solved. Young children use their senses to go about solving the puzzles of everyday life. Typically sighted individuals use their sense of sight to gather as much as 90% of sensual information (Ashcroft & Zambone-Ashley, 1980). Infants and young children



with visual impairments still gather this information, but sometimes have to work a little harder to do so and obviously use different senses to gain the information. That's one reason why it's so important to get the other senses as active as possible from a young age. Introduce your child to a variety of sensations and experiences. Get him curious and exploring from the start. It is suggested by Lowenfeld that quality sensory stimulation can even play a role in preventing some stereotypical self-stimulation activities. If a child is deprived of sensory input, it does seem logical that he may look for stimulation through activities such as eye poking and rocking (1971, p. 102).

The following activities are merely suggestions of ways to facilitate learning sensory awareness with your child. As always, get creative and remember that you are key to facilitating the learning process. You are the facilitator and educator. You have the opportunity to teach your children how to learn about the world using their senses. Have fun with it!

Sensory Awareness: Activity 1

Suggested Materials

- Four or five toys with distinct textures

Goals

- To encourage tactile awareness
- To encourage exploration
- To discourage tactile defensiveness

The goal of this activity is simply to provide a variety of textures for your child to explore and play with. Consider the textures for which your child shows a preference. You want a combination of preferred and new textures. The preferred textures will hopefully entice your child to explore; the new textures will add to experiences and hopefully reduce tactile defensiveness as your child has extended experiences with a variety of textures. If your child has residual vision, then visually simple, bright toys may attract increased interest.

Start by getting the child's attention. Introduce the first toy/texture. Place the child's hands on the toy. Using hand over hand, with the child's hand directly on the toy, explore the toy, moving hands all around. Talk to the child while going through the activity describing the texture. Is the toy soft, hard, scratchy, squishy, etc? If the child will play with or explore the toy independently, allow him to do this for a while. Then take the toy from

the child and suspend the toy above on a mobile or play gym. Make sure the toy is within reach, maybe even lightly touching the child.

Make sure you have the child's attention by touching his hand. This will also, hopefully stimulate the child to be prepared to use the tactile sense to touch. Guide the child's hand to the toy. Using hand over hand, touch the toy and describe its texture. Repeat this, using a hand over hand prompt, several times. Allow the child to try this independently. Entice your child to explore the object on the mobile by talking, singing, and lightly physically prompting. Decrease prompts with time. When the child searches and explores independently, repeat the activity with an additional toy. Eventually, you may incorporate as many as four or five toys of different textures along the mobile.

This activity is not intended to happen in one session. Many months can be spent exploring new toys and textures. All of these experiences will be new to your child, so don't rush the learning process. This activity could also be used to experiment with different shapes of objects.

Sensory Awareness: Activity 2

Suggested Materials

- As many as four distinct shapes or textures

Goals

- To encourage tactile awareness
- To encourage organized search patterns
- To encourage exploration
- To discourage tactile defensiveness

This activity builds on Activity 1, incorporating simple organized search patterns. This activity is for any child, but will be able to be used more independently by slightly older or more advanced children.

Start by getting the child's attention. Introduce the first toy/texture. Place the child's hands on the toy. Using hand over hand, with the child's hand directly on the toy, explore the toy moving hands all around the toy. Talk to the child while going through the activity describing the texture of the toy. Is the toy soft, hard, scratchy, squishy, etc? If the child will play with or explore the toy independently, allow her to do this for a while. Then take the toy from the child and suspend the toy above on a mobile or play gym. Make sure the toy is within reach, maybe even lightly touching the child.

Make sure you have the child's attention by touching his hand. This will also, hopefully stimulate the child to be prepared to use the tactile sense to touch. Guide the child's hand to the toy. Using hand over hand, touch and describe the texture of the toy. Repeat this, using a hand over hand prompt, several times. Allow the child to try this independently. Entice your child to explore the objects on the mobile by talking, singing, and lightly physically prompting. Each time the child touches the toy, emphasize the textural characteristic or shape. "This is soft. This is smooth. This is a square." Decrease prompts with time. Allow the child to search and explore independently. Each time, the child touches the toy, describe the characteristic (e.g., soft).

When the child does this independently, add a second toy. Go through the same steps as you did with the first. When you get to the point that both objects are suspended on the mobile, raise the child's hands straight up and use a systematic search from left-to-right to find both objects, describing each as the child touches the toy. Gradually encourage independence by slowly tapering prompts as you did before. When the child will explore both toys independently, you should still continue to describe the toy as the child explores. "You found the soft toy. You found the smooth toy." Then encourage the child to use the systematic search pattern you've been modeling and prompting to answer your questions. "Where is the soft toy? Where is the smooth toy?"

As time goes by and independence grows, you can add additional toys for systematic exploration.

Sensory Awareness: Activity 3

Suggested Materials

- Toy that easily produces sound

Goals

- To encourage auditory awareness
- To encourage auditory-hand coordination

This activity is sort of like a version of infant and very young child hide-and-seek. The child will be *it*, and the toy will be hiding from your child along a mobile or play gym.

Start by getting the child's attention. Introduce the toy and the sound it makes. Place the child's hands on the toy. Using hand over hand (or hand under hand so as not to pinch the baby's fingers), manipulate the toy so that it makes a sound. With the child's hand directly on the toy, explore the toy and go through the motions to produce the noise. If the child will play with or explore the toy independently, allow her to do this for a while. Then take the toy from the child and suspend the toy above on the mobile. Make sure the toy is within reach, but not touching the child.

As in Activity 1, make sure you have the child's attention by touching her hand. This will also, hopefully stimulate the child to be prepared to use the tactile sense to

touch. Make noise with the toy and then bring the child's hand to the toy saying something like, "let's find it." You could bring the child's hand directly to the toy or lift the child's hand straight up and search for the toy with them. Do this several times. After a few sessions, make the noise with the toy and then allow the child a chance to search for the toy independently. If the child does not search or cannot find the toy, give a simple prompt. Reduce the number of prompts over time until the child searches for the toy independently. When the child searches independently on a regular basis, you can begin to move the toy to different places along the mobile. Also, use a wide variety of toys that produce a wide variety of sounds.

Listening for and locating objects based on the direction of the sound is a complex skill. This activity can be very challenging; however, the goal is not perfect object location based on the direction of the sound. The goal is to get your child listening and exploring. When your child hears a new sound, we want him to wonder, what is that and where is it?

Spatial Awareness

In infants, spatial awareness is closely linked with object permanence (Slater & Bremner, 1989). Before a child can understand where things are in space and how they relate to one another, he has to understand that objects continue to exist when they are not in sight of or touching the child. In that regard, some aspects of these two sections will be reciprocal because as the child works on object permanence, he is also working on spatial awareness and vice versa.

As a child is working on spatial awareness, he is really working on two major concepts. First and foremost, he is working on an understanding of how objects in space relate to him. Secondly, he begins working to understand how objects in space relate to landmarks in the environment (Reiser, Lockman, & Pick, 1976). As the child works on these two concepts, it could help to start exploring the relation of objects to self and objects to other objects in a stable environment where the toys



and objects that the child explores remain constant. As this concept further develops, the child can begin exploring how the spatial relationships of the objects change as the environment changes.

Spatial Awareness: Activity 1

Suggested Materials

- Favored toy

Goals

- Understanding of spatial awareness (objects in space in relation to self)
- Understanding of object permanence

Talk to the child about a favored toy as you suspend it from the center of a mobile or play gym. This should be a toy with which the child is familiar and enjoys playing. Bring the child's attention to the toy. Allow the child to explore and play with the toy for a bit. Then, move the toy to the side of the child. Reintroduce the toy from the new position. Prompt or allow the child to explore and play with the toy from the new position. Make sure that you use hand over hand or another appropriate form of prompting to show the child how you moved the toy from one location to another. This will encourage an understanding of continuity in space—objects move from location to location, but they do not disappear and reappear. Repeat this activity at different locations to the child.

Spatial Awareness: Activity 2

Suggested Materials

- Two toys that make distinct noises

Goals

- Understanding of spatial awareness (objects in space in relation to self and objects in space in relation to each other)
- Understanding of object permanence

Suspend one toy so that it falls around midline on the child. Introduce the toy and the sound it makes to the child. Allow or prompt the child to explore and play. Suspend the second toy to one side of the first toy and introduce it and the distinctly different sound it makes. Allow or prompt the child to explore the new toy. Manipulate the first toy to make a sound, and then manipulate the second toy to make a distinctly different sound. Then prompt the child to do the same. Repeat this activity—moving the child's focus from the first toy to the second toy. Allow the child to play with both toys as independently as possible. Then, using hand over hand to encourage an understanding of object permanence, move the second toy to the opposite side of the first toy and repeat the activity.

Spatial Awareness: Activity 3

Suggested Materials

- Three toys suspended at different heights in relation to the child

Goal

- Understanding of spatial awareness (objects in space in relation to self and objects in space in relation to each other)

Suspend three toys using multiple connectors to vary the length the toys dangle down from a mobile or play gym. Introduce the toys to the child one at a time. Then move the child's hand in a continuous motion from one toy to the other. Prompt or allow the child to explore. Sound, texture, or vibration could be very motivating in these toys—encouraging the child to explore at all levels. Talk or sing to your child as you play with each of the toys, explaining, "Toy 1 is next to toy 2, toy 2 is higher than toy 3," and so forth.

References

- Adelson, E., & Fraiberg, S. (1974). Gross motor development in infants blind from birth. *Child Development, 45*, 114-126.
- Adelson, E., & Fraiberg, S. (1976). Sensory deficit and motor development in infants blind from birth. In Z. S. Jastrzemska (Ed.), *The effects of blindness and other impairments* (pp. 1-28). New York: American Foundation for the Blind.
- Ashcroft, S. C., & Zambone-Ashley, A. M. (1980). Mainstreaming children with visual impairments. *Journal of Research and Development in Education, 13*(4), 22-36.
- Bertenthal, B., & Von Hofsten, C. (1998). Eye head and trunk control: The foundation for manual development. *Neuroscience and Biobehavioral Reviews, 22*, 515-520.
- Bigelow, A. (1990). Relationship between the development of language and thought in young blind children. *Journal of Visual Impairment and Blindness, 84*, 414-419.
- Bruce, S. M. (2005). The impact of congenital deafblindness on the struggle to symbolism. *International Journal of Disability Development and Education, 52*, 233-251.

Carolan, R. H. (1973). Sensory stimulation and the blind infant. *New Outlook for the Blind*, 67, 119-126.

Castle, K. (1994). *The infant and toddler handbook: Invitations for optimum early development. Revised.* Atlanta, GA: Humanics Limited.

Colcock, K. B. (1992). *The blind and visually impaired child: A brief overview.* Unpublished master's thesis, California State University, Long Beach. (ERIC Document Reproduction Service No. ED358670)

Collins, M. T., & Rudolph, J. M. (1975). *A manual for the assessment of a "deaf-blind" multiply-handicapped child. Revised edition.* Unpublished manuscript, Midwest Regional Center for Services to Deaf-Blind Children, Lansing, MI. (ERIC Document Reproduction Service No. ED121050)

Ferrell, K., Trief, E., Deitz, S., Bonner, M. A., Cruz, D., & Stratton, J. M. (1990). The visually impaired infants research consortium: First year results. *Journal of Visual Impairment and Blindness*, 84, 404-410.

Fieber, N. (1977, March). *Sensorimotor cognitive assessment and curriculum for the multihandicapped child. Working papers in developmental disabilities.* Paper presented at Workshop on Cognition and the Deaf-Blind Child, Dallas, TX. (ERIC Document Reproduction Service No. ED235655)

Fraiberg, S. (1977). *Insights from the blind: Comparative studies of blind and sighted infants.* New York: Basic Books.

Gerhardt, J. B. (1982). The development of object play and classificatory skills in a blind child. *Journal of Visual Impairment and Blindness*, 76, 219-223.

Goodrich, J. A., & Kinney, P. G. (1985). *ADAPTIPS: Adapting curricula for students who are deaf-blind and who function in the sensorimotor developmental stage.* Unpublished manuscript, University of Kentucky, Lexington College of Education. (ERIC Document Reproduction Service No. ED276225)

Hatton, D. D., Baily, D. B., Jr., Burdchinal, M. R., & Ferrell, K. A. (1997). Developmental growth curves of preschool children with vision impairments. *Child Development*, 68, 788-806.

Honig, A. S. (2001, February). Infants & toddlers: How children develop sensory awareness. *Early Childhood Today*. Retrieved from <http://www2.scholastic.com/browse/article.jsp?id=3745968>

Jan, J. E., Freeman, R. D., Scott, E. P., & Wilmot, B. S. R. (1977). *Visual impairment in children and adolescents.* New York: Grune and Stratton.

Junior Blind of America. (n.d.). *Programs.* Retrieved July 9, 2009, from <http://www.juniorblind.org/site/programs>

- Lairy, G. C., & Harrison-Covello, A. (1973). The blind child and his parents: Congenital visual defect and the repercussion of family attitudes on the early development of the child. *American Foundation for the Blind Research Bulletin*, 25. (ERIC Document Reproduction Service No. ED085934)
- Leslie, A., & Keeble, S. (1987). Do six-month-old infants perceive causality? *Cognition*, 25, 265-288.
- Levtzion-Korach, O., Tennenbaum, A., Schnitzer, R., & Ornoy, A. (2000). Early motor development of blind children. *Journal of Pediatric Child Health*, 36, 226-229.
- Lowenfeld, B. (1971). *Our blind children: Growing and learning with them*. Springfield, IL: Charles C. Thomas.
- Millar, S. (1975). Spatial memory by blind and sighted children. *Journal of Child Experimental Psychology*, 21, 460- 479.
- Munakata, Y., McClelland, J. L., Johnson, M. H., & Siegler, R. S. (1997). Rethinking infant knowledge: Toward an adaptive process account of success and failures in object permanence tasks. *Psychological Review*, 104, 686-713.

- Nielsen, L. (1991). Spatial relations in congenitally blind infants: A study. *Journal of Visual Impairment and Blindness*, 85, 11-16.
- Prechtl, H. F., Cioni, G., Einspieler, C., Bos, A. F., & Ferrari, F. (2001). Role of vision on early motor development: Lessons from the blind. *Developmental Medicine and Child Neurology*, 43, 198-201.
- Project for New Mexico Children and Youth Who Are Deafblind. (2001). *Session 9: Summary: The beginnings of communication: Early childhood*. Retrieved from University of New Mexico Health Sciences Center, Center for Development and Disability Web site: http://cdd.unm.edu/db_intro/overview/index.htm
- Provine, R., & Westerman, J. (1979). Crossing the midline: Limits of early eye-hand behavior. *Child Development*, 50, 437-448.
- Ramey, C., & Ramey, S. (1999). *Right from birth: Building your child's foundation for life*. New York, NY: Goddard Press.
- Rieser, J., Lockman, J., & Pick, H.L. (1976). *The role of visual experience in spatial representation*. Paper presented at the meeting of the Psychonomic Society, St. Louis, MO.

Ross, S., & Tobin, M. J. (1997). Object permanence, reaching, and locomotion in infants who are blind. *Journal of Visual Impairment & Blindness*, 91, 25-32.

Shim, J. K. (2004). *Prehension overview*. Retrieved July 6, 2009, from Ball State University Web site: <http://www.bsu.edu/web/jkshim/handfinger/overview/overview.htm>

Signer, S., & Wright, S. (Eds.). (1995). *Program for infant/toddler caregivers. Trainer's manual. Module III: Learning and development*. Sacramento, CA: California State Department of Education.

Slater, A., & Bremner, J. G. (Eds.). (1989). *Infant development*. Hove, United Kingdom: Lawrence Erlbaum.

Sonksen, P. M., Levitt, S., & Kitsinger, M. (1984). Identification of constraints acting on motor development in young visually disabled children and principles of remediation. *Child: Care, Health and Development*, 10, 273-286.

Thomas, M. A. (Ed.). (1977). *Developing skills in severely and profoundly handicapped children*. Unpublished manuscript, Council for Exceptional Children, Boston, MA. (ERIC Document Reproduction Service No. ED152030)

Von Hofsten, C., & Fazel-Zandy, S. (1984). Development of visually guided hand orientation in reaching. *Journal of Experimental Child Psychology*, 38, 208-219.

White, B., Castle, P., & Held, R. (1964). Observations on the development of visually-directed reaching. *Child Development*, 35, 349-364.

Zimmerman, G. A. (1985). *An exploratory study of preferred textures of objects for visually handicapped infants and young children*. Unpublished doctoral dissertation. University of Texas at Austin.

Appendix: Suggested Materials

Just as the activities in this manual are meant to be suggestions, and you are encouraged to be creative and individualize the routines you use with the children you work with, the materials mentioned in this guide are just suggestions. Pay attention to the toys, sounds, and textures the child you work with likes. Get creative! Safety should, however, always be your primary concern.

Suggested materials in this guidebook include the following:

- Mobile or play gym
- Bells
- Toys that easily produce sound
- Toys that squeak
- Toys that produce a puff of air when squeezed
- Multi-colored pom poms
- Satin toys
- Toys that vibrate when pulled or squeezed
- Blanket

A Note on Textures

The best way to determine which textures the child you work with likes is trial and error while paying close attention to the child's reactions. Also, know that these preferences can change over time, so exposure

to a variety of textures is a constant priority. Limited research on the textures preferred by infants and young children suggests children of certain ages may have unexpected preferences. In one study, the preferred textures of 1 year olds was satin, a kitchen scrubber appealed the most to 2 year olds, and needlepoint canvas was a hit with 3 year olds. These picks were not what the adults around the children preferred (Zimmerman, 1985). This suggests we should be creative and child-focused when picking materials. This information is provided as a starting point and food for thought as you explore textures with the child you work with.



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