

## Suggested Play Materials

- Balls (e.g., knobby, squishy, with bells and chimes)
- Bubbles
- Busy boards or boxes and activity cubes
- Finger paints and foams
- Grasping toys to hold, shake, and squeeze
- Images with patterns, different shapes, and contrasting colors
- Mobiles hung from a floor stand (i.e., baby gyms)
- Molded plastic animals (e.g., bugs, dinosaurs, forest critters, sea creatures)
- Music representing different cultures and styles
- Musical instruments (e.g., simple and safe bells, shakers, drums, tambourines)
- Rattles, teethingers, and things to chew on and taste
- Rugs, mats, and fabrics with different textures
- Scarves and fabric pieces
- Sensory bottles
- Sensory tables and tubs
- Smell jars, bottles, and cups

## CHAPTER 5

# Play Materials That Help Me Construct Knowledge and Understanding

Children are born learning.

—Andrew Meltzoff, “Born to Learn: What Infants Learn from Watching Us,” *The Role of Early Experience in Infant Development*

Jean Piaget (1896–1980) and Lev Vygotsky (1896–1934) are well known for their theories of cognitive development in young children. Both Piaget and Vygotsky spoke about how learning and development occur as children build (construct) knowledge and understanding of people and things in the world around them (Semmar & Al-Thani 2015). Piaget said children do this using all of their senses as they play with materials on their own, and Vygotsky stressed that it happens best when children directly interact with others while exploring their environment.

### The Other Senses

Along with the commonly known five senses (sight, sound, touch, smell, and taste), there are two that are less well known:

- The **vestibular sense** involves movement and balance and gives the child information about where their body is in space.
- The **proprioceptive sense** tells the child where their various body parts are in relation to each other and other things at any given time.

The play material suggestions in this chapter support cognitive learning and development that happen when children use one or more of their senses to construct knowledge and understanding. This happens best when children are free to move their bodies in the ways they want, which results in the movement and sensory parts of the brain working together in what is called *sensorimotor learning* (von Hofsten & Rosander 2018). Sensorimotor learning supports three important areas of cognitive development in infants and toddlers—sensory integration, object permanence, and focused attention—which are also supported by the play materials featured in this chapter.

### Key Sensorimotor Developments

- **Sensory integration:** When two or more senses are used at the same time, the brain integrates, or combines, the information to understand what has happened and then guides responses.
- **Object permanence:** The understanding that objects and people continue to exist even if they cannot be seen or heard.
- **Focused attention:** The amount of time a child can ignore distractions and focus on a person, object, or event is driven by how interesting something is (Ruff & Capozzoli 2003). Focused attention increases about three to five minutes each year.

## Young Infants (Security Seekers)

Sensory stimulation is a need as important as food and oxygen to a young infant! However, too much of anything, even a good thing, can have negative consequences. Because a young infant's neurological system is still maturing, they can easily become overstimulated, particularly in a busy, noisy (and often smelly!) child care setting. "Overstimulation happens when a child is swamped by more experiences, sensations, noise, and activity than she can cope with" (Raising Children Network 2020). As you consider play materials for young infants, keep in mind the need for balance between too little sensory stimulation, which may result in a bored and disengaged young infant, and too much, which may cause needless stress.

### Attention-Grabbing Toys

Young infants' visual ability grows rapidly over the first few weeks. Between 3 and 4 months, young infants begin to track (visually follow) objects or people that move across their field of vision, even from across the room, until they disappear (Berk & Meyers 2015). At this age, out of sight means out of mind in terms of the development of object permanence. You can observe changes in visual ability, object permanence, and gradual increases in attention span by shaking a rattle in the child's line of sight. The sight and the sound together will attract their attention. Slowly and smoothly move the rattle while shaking it, first in one direction, back to the middle starting point, and then in the other direction. Other items that attract young infants' attention and stimulate them include blocks, books, and cards that show images of faces, simple patterns and shapes, or contrasting colors.

As their teacher, your role is to engage young infants in joint attention experiences (Degotardi 2017). *Joint attention* "enables infants to communicate with adults as well as with each other, sharing what is in their minds" as they attend to some third thing together (Shin 2012, 309). When you hold young infants in your arms or lap, they are highly motivated to look at things. Encourage them with your words, using soft and soothing tones, while pointing to interesting



things. Similarly, you can join a young infant who is already intently gazing at something on their own and begin a joint attention experience by recognizing what they are already looking at, turning your own eyes toward it and commenting on it.

## Things to Touch, Taste, and Smell

Families often ask, sometimes with frustration, “Why does my baby put everything in their mouth?!” As you know, mouthing is one of the primary ways that very young children come to understand the properties of objects. As they examine objects with their mouths, infants feel the textures and contours and experience the various tastes and smells of the objects. To support this learning, have plenty of safe toys that can be grabbed, held in one hand, mouthed, and retrieved after children lose interest in them so the toys can be sanitized. Rugs and mats with different textures (e.g., soft, scratchy, sticky, shaggy) are also wonderful for young infants. The fabrics and materials stimulate touch receptors in their skin as infants encounter them with fingers, hands, feet, and any other unclothed parts of their bodies. Place young infants on their tummies on surfaces with eye-catching features, such as water mats with floating toy fish or blankets with clear pocket panels that can hold photos of families or animals. Such materials stimulate touch and visual senses as well as hearing when you engage with infants in the experience.

## Mobile Infants (Discovery Seekers)

Mobile infants are all about discovery. It is a period of wonder and excitement as mobile infants move about experiencing one “aha!” moment after another as they put language, ideas, and sensory experiences together. This discovery learning is aided both by their increased mobility and continuing maturation of vision and depth perception that allows them to see things in three dimensions.

## Sensory Bottles and Bubbles

Play materials that are particularly interesting to mobile infants and promote sensory integration and focused attention are sensory bottles and bubbles. A sensory bottle is a see-through container (e.g., an unbreakable jar, a sealed bottle, a plastic tube) that holds an interesting object that floats and moves through it. There are many different toys like this on the market, of course, but you can make them using directions suggested on numerous websites. This is also true of bubble solutions.

When mobile infants play with sensory bottles or bubbles, it is usually one-on-one or in a small group with you. These materials provide wonderful opportunities to experience a few quiet and peaceful moments of joint attention and conversation as the children watch what happens when you blow bubbles into the air or gently tip the bottle over or from side to side. These play materials typically mesmerize mobile infants, and the interesting nature of such activities may help them build on their developing ability to filter out distractions and focus or pay attention longer. Following bubbles or the objects in a sensory bottle as they float about supports the mobile infant's visual tracking skills. As mobile infants try to catch the floating bubbles, the movement of their hands connects the hand-body movement (proprioception) to the visual sense. When the mobile infant finally catches a bubble, they feel a wetness and stickiness and smell the soapy scent of the bubble water, aiding in their construction of understanding of what bubbles are all about.

## Balls That Are Knobby, Squishy, or Have Bells and Chimes

Balls of different sizes and materials are great for mobile infants. They can facilitate and support all areas discussed in this chapter related to cognitive learning and development: sensory stimulation and integration, object permanence, and focused attention. Balls are responsive, and mobile infants quickly learn that balls—or at least most of them—roll in a predictable way. As the mobile infant follows a ball's movement across the floor or grass, they can practice their rapidly maturing visual tracking skills. When the movement of a ball is paired with the sound of a chime or a bell from inside the ball, the mobile infant's brain has to integrate the two senses that are stimulated—sight and hearing—strengthening the sensory integration of the experience. If the ball disappears partially from view, the mobile infant's developing understanding of object permanence allows them to go after it and retrieve it. In terms of the development of object permanence, the child still needs to see at least some of the object to know that it still exists.

### Peekaboo, I See You!

Peekaboo is a simple game to play with both young and mobile infants. Not only is it fun, it also works to strengthen visual tracking, supports the development of object permanence, and can help mobile infants work through issues of separation anxiety. They come to understand that even if a favorite person disappears, they can reappear too!