Look, Listen, Touch, Feel, Taste: The Importance of Sensory Play

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Over several weeks during work time in the HighScope Demonstration Preschool, we wrote the following anecdotes while observing the children at the sand and water table:

Matthew submerges his truck in the water and sings, “Underwater fire truck. Underwater fire truck.”

When Adam’s water wheel leaks, Shamar explains it’s because “It has to be on tight.”

Desmond pours sand down a large cardboard tube and says he is “pouring cement on the foundation.” Brynna works alongside him. Desmond hands Brynna a hat and says, “You have to wear this because it’s a construction hat. Here, put on your hard hat.”

Early childhood educators like to emphasize that “young children learn with all their senses.” Yet we sometimes have to remind ourselves of this when we plan experiences in our classrooms. We often don’t provide enough intentional opportunities for children to actively use their senses as they explore the world, especially once they get past the infant and toddler years. Preschoolers
still need to participate in sensory experiences, and to do so with greater sophistication — that is, to use more of the scientific process as they explore — in order to continue learning about the world and how it works. In this article, we will discuss the benefits of, and barriers to, sensory play. We will also take a look at the sand and water table as a great place to observe and support numerous key developmental indicators (KDIs).

Take a look at the sand and water table in your classroom. Is it buzzing with activity or is it simply a brief stopping point for children to swish around in before moving on to other areas of the classroom? Or is your sand and water table closed because there is simply not enough room or because it’s too messy? Whether you need to rekindle interest in your sand and water table or remind yourself about the value of sensory play in general, this article, along with this issue’s Classroom Hints, will help you to rediscover the sensory learning opportunities available in your classroom.

The Benefits of Sensory Play

We know that young children are oriented toward sensory experiences. From birth, children have learned about the world by touching, tasting, smelling, seeing, and hearing. Sensory play also contributes in crucial ways to brain development. Think of it as “food for the brain.” Stimulating the senses sends signals to children’s brains that help to strengthen neural pathways important for all types of learning. For example, as children explore sensory materials, they develop their sense of touch, which lays the foundation for learning other skills, such as identifying objects by touch, and using fine-motor muscles. The materials children work with at the sand and water table have many sensory attributes — they may be warm or cool, wet or dry, rough or smooth, hard or soft, textured or slimy. Discovering and differentiating these characteristics is a first step in classification, or sorting — an important part of preschoolers’ science learning and discovery.
The Barriers to Sensory Play

Teachers may give many reasons for limiting sensory play in early childhood settings:

• “There isn’t enough room for art projects or a sand and water table.” Ideally, painting areas and sand and water tables would be located on tile floor rather than on carpet. But in classrooms with limited tile floor, as in the Demonstration Preschool, teachers can create a painting space or place their sand and water table on plastic office chair mats (the kind with spikes on the bottom so the mats don’t slip) or large commercial floor mats to protect the carpet. If space is truly at a premium, an alternative to a regular sand and water table is to fill plastic dish tubs with sensory materials for children to take to a table. Stack and store the tubs on the floor in your art area so children can access them on their own.

• “It’s too messy.” Sensory play is messy. It means water, paint, and glue on the floor or sand tracked through the classroom. However, that is the adults’ problem, not the children’s! Examine your own tolerance for messiness, and weigh it against the learning opportunities for children. Remember that cleaning up sensory-material messes provides opportunities for creative problem-solving with materials. Enlist the children’s ideas both for how to keep messes to a minimum and how to clean up messes when they do occur.

• “The sand and water table (or art area) is just a boring and empty space.” Sometimes you just need fresh ideas to help spark new interest in classroom areas. A simple space can become a complex and intriguing one if you think creatively about how to construct it. For example, the teachers at the HighScope Demonstration Preschool found new inspiration for their sand and water table from Tom Bedard, an early childhood teacher in St. Paul, Minnesota, who attaches cardboard boxes, rubber tubs, and cardboard or PVC tubes to his tables in various ways to create multilevel sand and water tables that includes ramps, chutes, tunnels, and peepholes. As the HighScope Demonstration Preschool teachers considered how to spice up their classroom sand and water table, they took into account

Teachers don’t need to limit their thinking to sand and water at the sensory materials table — many other materials work well, too!
Tom Bedard’s basic ideas about how children play at sand and water tables (see sidebar above).

Using Tom’s ideas as a model, Demonstration Preschool teachers explored adding features to their own sand and water tables by fashioning ramps out of cardboard boxes and running large cardboard tubes between the two tables. In addition to creating more room for children, adding the components created different physical levels of play for the children that provided more opportunities for them to reach down, stretch high, and explore different spatial concepts.

The teachers also thought more creatively about the kinds of materials to provide in this area. Many of the items that most classrooms already stock (such as small animals, toy cars, kitchen utensils, building tools and fasteners, and shredded scrap paper) are great for sliding down ramps, burying and digging up, dropping in containers, pouring down chutes, and so on. See this issue’s Classroom Hints the many ways that sensory play at the sand and water table can support the KDI’s. As you read, note the types of diverse, open-ended materials the teachers provide for the children to play with.

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Remember that sensory play provides many opportunities for children to engage in active learning and experience the KDI’s. Take a look at the different areas in your classroom and how children play there. With thoughtful adult support and interesting, open-ended materials, children will come, play, and learn.

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Jazzing up the sand and water table will create more interest for children, but teachers can enrich and extend children’s learning by intentionally adding toys or materials and interacting with children in ways that support specific key developmental indicators (KDIs). Next we’ll take a look at some of these. Under each of the categories of HighScope Preschool Curriculum Content discussed below, we’ll point out individual KDIs (in italics) that you are likely to see children engaging with for each material or activity mentioned.

**Category A: Approaches to Learning**

The mere addition of boxes, tubes, or chutes to the sand and water table draws children to the table, and the complexity of the multiple levels and added features keeps children interested and focused. With complexity added to the features of the table, there comes more opportunities for children to solve the problems they encounter as they play, for example, how to get the stuck car out of the tube, or how to transport the birdseed from the table to the cardboard chute with minimal spillage (A. Approaches to Learning: 3. Engagement; 4. Problem solving). And as they play and solve problems, they formulate ideas about how materials and processes work (e.g., A. Approaches to Learning: 5. Use of resources).

You can support children by providing materials to use at the table based on their current interests (e.g., dinosaurs, cookware, sea creatures), and provide materials that children must figure out how to manipulate (e.g., plastic pumps, poultry basters, plastic tubing, funnels, strainers). Describe or encourage children to describe the problems they encounter with materials, and refer children to one another for possible solutions. Ask children to help you plan ways to modify the table by encouraging them to think about the materials and features they enjoy (A. Approaches to Learning: 2. Planning; 6. Reflection).

**Category B: Social and Emotional Development**

Children practice their social interactions as they work closely with one another at the sand and water table. They solve problems about how to share space and materials and work together (building relationships, cooperative play, conflict resolution). The open-endedness of the sand and water table provides children at all stages of development opportunities to try new things and be successful (B. Social and Emotional Development: 8. Sense of competence).

You can support children’s social and emotional development by not limiting the number of children who can play at the sand and water table. Play alongside children so you can interpret their words and gestures for others and assist in conflict resolution. Provide materials that children can use together, such as water wheels and large buckets that take two to fill or carry. Encourage children to maintain a safe sensory area by providing hand brooms and dustpans for sweeping up dry spills, and large towels for soaking up wet spills (B. Social and Emotional Development: 11: Community).

**Category C: Physical Development and Health**

Because the sand and water table is a limited space, children work in close proximity to one another, which provides a perfect way for them to practice sharing space with others (C. Physical Development and Health: 18. Body awareness). As they develop a better sense of the space around them, children learn to use the materials with a growing awareness that others require space to manipulate objects. Also, with experience, children become more aware of the spatial boundaries of containers such as cups, buckets, or the sand, as well as the water table itself (e.g., when they turn around with a full cup of sand, they hold the cup upright rather than turning their wrist).

Providing sand and water table fillers such as dried beans, birdseed, and dried field corn alone or in combination with small toys, such as animal figures, alphabet letters, or marbles, and materials such as tweezers, sponges, and spoons, helps children develop...
dexterity and hand-eye coordination (C. Physical development and health: 17. Fine-motor skills). And children practice healthy behaviors (e.g., washing hands, turning away from the sand and water table to sneeze, keeping cuts covered) to help keep the sensory materials clean (C. Physical development and health: 20. Healthy behavior).

To support children’s fine-motor development, provide small manipulative toys and materials such as sea shells, tongs, hand-turned (rotary) egg beaters, shredded paper, and scissors for children to use. As you play with children at the sand and water table, model healthy practices and acknowledge when children do too.

**Category D: Language and Literacy**

As children play together at the sand and water table, they converse with one another about what they’re doing, talk about topics that interest them, and engage in pretend talk (D. Language, Literacy, and Communication: 21. Comprehension; 22. Speaking). They describe materials and processes (e.g., “The shaving cream is fluffy”; “I’m mixing mud”), and learn new words from others (“I’m going to mold my sand castle”) (D. Language, Literacy, and Communication: 23. Vocabulary).

Support children by conversing with them about what they are doing. Describe what you are doing, and look for opportunities to introduce new vocabulary about how things feel (slippery, crumbly, pebbly) and move (ooze, zigzag, trickle). Add materials to the table such as small alphabet beads or letter tiles from old Scrabble games to hide under the sand, which may spur additional language and literacy experiences (D. Language, Literacy, and Communication: 25. Alphabetic knowledge).

**Category E: Mathematics**

At the sand and water table, children compare the size of their sand pile to other children’s to see which is bigger (E. Mathematics: 36. Measuring), and count the number of scoops it takes to fill up a container (E. Mathematics: 32. Counting; 37. Unit). They hide toys under birdseed, run cars through tubes, and pour gravel down chutes and as they work (E. Mathematics: 35. Spatial awareness). They make imprints with sifters and comment on the design, and line up measuring cups by size (E. Mathematics: 38. Patterns). They make cylindrical sand castles, and describe their dug-out roads as “curvy” or as “straight” (E. Mathematics: 34. Shapes).

Support children’s math exploration by using math ideas as you play (e.g., count the cars as children race them through a cardboard tube into the sand). And look for opportunities to use math language (e.g., “You’re using the biggest measuring cup. It holds the most gravel. Mine’s smaller; it holds less,” and “How many more buckets of water are you going to pour in the tub?”). Add materials that promote math concepts, for example, containers of different sizes and shapes, small collections of materials that can be counted, and objects that children can pour materials through (e.g., paper towel or toilet paper tubes, funnels with different-sized openings, bendable plastic tubing in different lengths).

**Category F: Creative Arts**

Imaginary play (F. Creative Arts: 43. Pretend play) happens frequently at the sand and water table. Children pour sensory material back and forth from one cup to another as they concoct “poison”; they bring over muffin tins from the house area to make birdseed cupcakes; and they create play scenarios for their people and animal figures. To support and extend pretend play at the sand and water table, join in! Fill your sand and water table with materials that support children’s pretend play themes, and add props to extend their ideas (e.g., fill the table with water and add small bottles of baby shampoo and baby washcloths and towels to extend children’s baby doll play).

The sand and water table also provides many opportunities for young children to use their imagination artistically (F. Creative Arts: 40. Art). For example, they might mold free-form or representational shapes with wet sand and use a kitchen utensil to carve a line into a damp surface. They also explore aesthetic properties such as color, size, and shape as they work with materials. Imagine a preschooler rhythmically stirring soapy water or steadily dropping beads down a tube (F. Creative Arts: 42. Movement). Finally, think back to Matthew in the anecdotes at the beginning of the lead article. He broke into song (F. Creative Arts: 41. Music) as he exuberantly submerged his fire truck into water.
Category G: Science and Technology

Sand and water table play seems to support the science KDIs effortlessly. As children play, they continually process how materials look, smell, feel and sound, and how they behave — for example, beans get stuck in the tube but sand runs through easily; whisking the soapy water creates bubbles; mixing dirt and water makes mud (G. Science and Technology: 45. Observing). With curiosity, children try different ways of manipulating materials — for example, whisking the water slowly or quickly; tilting the tube at different angles; adding a lot or a little water to dirt (G. Science and Technology: 47. Experimenting). They then formulate ideas about how things work, based on their observations — for example, that whisking the water fast makes more bubbles, that tilting the tube higher makes the beans run through the tube without getting stuck; and that mixing a lot of water with the dirt makes the dirt turn into black water (G. Science and Technology: 49. Drawing conclusions).

To support science and technology, observe and describe the properties of the materials in the sand and water table yourself (e.g., “This sand is dusty”; “The beans rattle when they slide down the chute”) and encourage children to describe their observations (e.g., “How do the cedar chips smell?”; “What happened when you added water to the snow?”). Fill your table with natural materials, for example, garden soil and worms, colorful fall leaves, or pea gravel from the playground (G. Science and Technology: 51. Natural and physical world).

Pose and answer “what if” questions yourself while playing (e.g., “I wonder what would happen if I bang the bottom of the chute”; “Oh look, when I bang it, the beans jump”). Ask children “what if,” “why,” and “how” questions — for example, “Why do you think the water is not running through the tube?” Ask children what they think might happen as they experiment with materials and processes — for example, “What do you think will happen if you squeeze the turkey baster?” (G. Science and Technology: 48. Predicting).

Technology and sensory play may not go together, but simple tools and sensory play go hand in hand. Children use funnels to fill bottles with water and use sifters or strainers to find and separate small beads mixed in the sand (G. Science and Technology: 52. Tools and technology).

Category H: Social Studies

Taking care of the learning environment is one of the social studies KDIs that can be supported at the sand and water table (H. Social Studies: 58. Ecology). When children play a meaningful role in taking care of the learning environment, it supports the development of empathy and sense of community that are at the heart of children’s emerging ecological awareness. And there are certainly plenty of opportunities for children to take care of the sand and water table area. Help children understand the importance of taking care of the environment by helping them make connections between how their caring behavior benefits others and the environment (e.g.; “Washing the muddy toys after we play with them helps keep our materials in good condition for other children”; “When you use a towel to wipe up the water on the floor, it helps us save paper towels so we have enough for drying our hands”).

By intentionally providing children with opportunities to use all their senses, we are able to observe children engaging in KDIs from every curriculum content area!
Young children explore with their senses first. Infants and toddlers naturally initiate discoveries about the world around them, so providing a variety of interesting sensory experiences can pique their curiosity and support their brain development.

Many strategies are available to support both typically developing infants and toddlers as well as those with special needs. One very universal and celebrated approach is to incorporate a wide variety of sensory experiences. These experiences are easily modified to match individual preferences and developmental levels, giving teachers many options for incorporating them into indoor and outdoor activities at the center or classroom. They also allow children who may have limited abilities in one area (such as sight) to use their other abilities (such as hearing or smell) to maximum capacity. Sensory experiences guarantee that every child will be successful and add to his or her knowledge about the world.

In the remainder of this article, we will look at the benefits of sensory play as well as several things you can take into consideration when planning sensory experiences for infants and toddlers — especially when you are supporting a spectrum of needs. Build on the suggestions below to create sensory experiences that capture the interests and preferences of the children in your program, and that reflect the sights, sounds, smells, tastes, and textures of their homes and communities.

**Benefits of Sensory Play**

A lot of learning can occur while children are doing what they do best: playing and exploring! Consider the following benefits of sensory play to children:

**Cognitive development.** Even before children can speak, they are developing an understanding of things in their environment by actively exploring them with all their senses. As they become more verbal, they are able to describe similarities and differences in what they see, hear, taste, touch, and smell. For example, each time a child explores sand, he is confirming his previous explorations and discoveries that sand is dry, gritty, and so forth, and he will eventually notice other materials that share those same characteristics.

**Social skills.** Working closely together at the sand and water table gives infants and toddlers opportunities to observe how peers handle materials, try out the ideas of others, share their own ideas and discoveries, and build relationships.

**Sense of self.** As they directly experience things themselves, children explore and communicate preferences, making sense of the world around them. For instance, they discover that they enjoy the feel of dry sand or that they have an aversion to slimy things. When caregivers acknowledge and accept their preferences, children learn that their feelings and decisions are valid.

**Physical skills.** Children develop and strengthen new motor skills through shaping, molding, scooping, dumping, and splashing — these actions all support the development of small and large muscles. For instance, holding a scoop to fill and dump sensory materials works many muscles used in other parts of the children’s day, as when they hold a cup or spoon at mealtimes.

**Emotional development.** Sensory experiences can be very
calming for many children and can help them work through troubling emotions, such as anxiety or frustration. For example, working with materials that require pressure and manipulation, such as play dough, can help children release physical energy or tension. Likewise, sensory materials lend to children’s expression of positive feelings, such as joy and excitement.

**Communication skills.** Through their choice of materials and actions during sensory play, children have opportunities to communicate both verbally and nonverbally. While splashing in the water table, a young toddler may display a look of surprise as her hand makes contact with the water or squeal in delight as she is able to make the water splash repeatedly. A caregiver’s responses to the efforts to communicate help children know the message they are trying to convey has been received.

**Identifying Personal Preferences**

Regardless of the presence or lack of a special needs diagnosis, each child will have his or her own preferences and comfort level regarding sensory experiences. It’s helpful to pick up on children’s cues during other parts of the day to determine what kind of sensory experiences will be the most exciting and engaging for each of them.

- During mealtimes, notice how the children eat; note their preferred food tastes and textures and their comfort level when handling food with their hands.

- During bodily care routines, take note, for example, of children’s demeanor when washing their hands — for example, their preferred water temperature and flow, and how they explore water, soap, and bubbles.

- At outside time, note how and where individual children tend to play — for example, in the sandbox or in the grass or feeling the wind on their faces as they swing or bike — and whether children initiate messy play.

**Creating Accessibility**

Young children often gain information by observing, but if they are unable to see or pull themselves up to the activity, they could miss out on gathering new ideas from their peers. By bringing the materials down to their level, they have access to the activity.

Think about where the sensory experience is taking place and what the accessibility is like there for the children in the program.

For example, sand and water tables are used in many classrooms and can be very feasible for many infants and toddlers; but there are some other variations to consider:

- **Small bins on the floor:** This option allows children to sit next to the bin rather than having to hold themselves up at the table. The bins are also more visible to children who are creeping or crawling at ground level.

- **Trays on the table or floor:** Infants and toddlers at any level of development can access sensory experiences from trays by lying on their tummy or exploring the materials with their feet or hands.

- **Sand and water tables made of clear (see-through) material:** These allow children to observe the exploration that is occurring from a comfortable position. They can even see into them from underneath!

**Selecting Materials**

You can use the following as guidelines for selecting sensory materials for all children:

- **Choose materials that appeal to all senses:** Thinking about children’s tactile experiences are perhaps the most important, but it is also useful to consider the way sensory materials look and smell, and the noises materials make when used together. Some smells may be inviting, while others may be too strong or otherwise undesirable. Some children may be resistant to things that are cold or warm. Infants and young toddlers are also likely to mouth materials at the sensory table, so be sure materials are safe and comfortable for mouth exploration.

- **Provide different types of sensory materials in bins or trays in addition to the material in your sand and water table:** Acknowledge that children have different sensory preferences, and provide them with choices. Doing so allows children more options and variety in sensory and tactile experiences. If there is one bin and it is filled with water, and there is a child who is not comfortable getting wet, he or she may avoid the area and possibly miss out on valuable learning opportunities. However, if multiple bins or varieties are available, children can choose the type of sensory experiences they feel comfortable with.

**Providing Alternatives**

**Tactile preferences.** It’s very common for young children to display an aversion to one texture or another, either due to discomfort or lack of exposure to the material in a comfortable setting. Here are some alternatives to consider for supporting children who are uncomfortable with the texture or consistency of a material:
• **Resealable plastic bags**: It can be particularly helpful to place messy, sticky, or gooey substances in resealable bags if infants and toddlers are not yet comfortable with or able to choose whether or not to touch the material with their hands or feet.

• **Tools for manipulating sensory material**: Providing tools is a very nonthreatening way to allow children to explore a texture they are not yet comfortable touching directly. Tools you might include are brushes, scoops, funnels, sponges, whisks, and cups.

**Preferences regarding noise.** Some children can be excited by loud noises, such as banging pots and pans, but others can be very unsettled by such noises.

Be sure that children have alternative or individual spaces to be in when sensory experiences may be overstimulating or undesirable.

Providing sensory experiences in a comfortable, accommodating environment can offer infants and toddlers lots of new, exciting, and beneficial opportunities. Taking into consideration children’s individual needs can really make them feel at ease and allow them to follow their interests!
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NEW BRIEFS ASK US

By Emily Thompson, HighScope Early Childhood Specialist

“I really want to change the things that I put in my sand and water table, but my center has a policy about not using food items. I feel like I can only use sand and water. Any suggestions?”

— A Preschool Teacher

Agencies have different policies about the use of food during play and exploration, as well as concerns about children’s food allergies and sanitation, so you should always check your center policies when thinking about these things. Fortunately, there are many nonfood sensory materials, in addition to sand and water. It is also good to think about the children in your classroom: their ages; developmental abilities; allergies; and sensory needs. If you look outside the box and think openly about the sensory experiences you want children to explore, you can provide engaging materials that meet the philosophical, safety, and sanitary policies or guidelines of your program and meet the needs of your children at the same time.

Think creatively when it comes to putting new things in your sand and water area. There are many items to include besides food: water; snow; leaves; plant gel; bird seed; plastic pellets; cedar bedding; ice; shaving cream; and pea gravel. You should also check the details of your center’s food policy. Many times the center does not want you to use food items that humans could have eaten (dried beans, rice, or dried pasta) but allow other things that are “food” but never intended for human consumption; for example, corn cob (found in pet bedding); field corn; and coffee grounds.

Consider children’s sensory needs and the sensory experiences they already enjoy when thinking about other materials that provide the same or similar sensations. For example, if you have children who like to play in water, they may also like smooth or wet materials in the sand and water table (such as gel or foam). If you have children who prefer the sand, you might try more grainy items that can run through children’s hands the way sand does (such as bird seed).

When thinking about the ages and developmental abilities in your classroom, make sure you are including items that are safe in the tables. For example, if you have children who put things in their mouths, make sure the material is big enough so that it will not be a choking hazard.
Another safety issue is allergies. In addition to food allergies, many children also have dust or seasonal allergies. Collect and record allergy information from parents at program entry (and update it as needed), and avoid placing known allergens in your sand and water tables. Make sure the items you are using are not dusty or do not have a prominent odor, as these children might also be sensitive to these materials.

Another center rule that you may come across has to do with the clean up of the sand and water area. Many centers don’t allow certain things inside the classroom because of the carpet flooring. In our classroom we have purchased two large desk chair mats from an office store. Since these are plastic, they are great to put under the sand and water tables. You can tape the seams together with duct tape, and water stays on the mats. We also include floor towels and brooms in the area so that children can be independent and clean up their own spills!