# 1 What We Know About Children's Learning

*I didn't know how interested my son is in reading and learning new things until we played those games you sent home with him.*

—Parent's note to her son's kindergarten teacher

What are the best ways to encourage children's learning at home? Answers to this question depend on what we know about how children learn in general and the integral role that families play in that process. Our understanding of learning is based on decades of research. While there are numerous approaches to curriculum, there is widespread agreement about principles and practices that underlie the best of them. Regardless of setting—whether formal or informal, school or home—these principles apply.

Any steps you take to encourage children's learning at home involve the family. Your efforts will be magnified if families, too, understand how children learn best. To this end, you have a unique opportunity to help them do so even though that may not be the reason you became a teacher. You may agree with a veteran teacher who said, "When I first started teaching I wasn't altogether prepared for how much I would be involved in parent education!" Even so, while the approaches you use to facilitate learning at home are designed to benefit children, they can also help family members better understand children's learning, so they are able to support it now and in the future.

## LEARNING PRINCIPLES

### Children Are Active Learners

Whether or not learning theorists have influenced your views, if you have worked with young children, you know they learn best when they are actively engaged. Just like the ancient Chinese proverb "I hear and I forget. I see and I remember. I do and I understand," children learn by doing. From birth on, they are intent on finding out about the world around them. They actively construct understanding through their own endeavors during first-hand experiences with materials and with others in their homes, communities, and classrooms. They need abundant opportunities to figure out how things work in both the physical and social worlds.

Good learning experiences enable them to do just that. Good learning experiences are authentic—connected to the real world as children know it—and for that reason they are memorable and satisfying. No amount of telling children that 2 + 3 = 5 can replace actual experiences with concrete materials they can use to make this and other numerical relationships meaningful.

Parents and other adult family members may not fully understand young children's need for the kinds of first-hand experiences that best support their learning. They may hold the view that true learning is "book learning"—formal instruction by trained teachers—and that it entails the kinds of systematic instructional practices prevalent in classrooms for older students. But just like their children, parents also learn by doing. They are better able to understand the power of active learning by experiencing it themselves. *Telling* them that children learn through authentic experiences is likely to be less effective than *enabling* them—say—to play a game with their child that entails using academic and intellectual skills, so they experience the benefit of active learning first-hand.

## Children Learn Through Interactions With Others

Learning is in large part a social activity. Children are social beings and social interaction has great power to encourage the expansion of their thinking and their language skills. Communication with others enables children to connect their experiences to the language symbols—the words—that represent them. As they become more proficient language users, their ability to talk about their understandings improves. At the same time, other people can use language to provoke children's thinking. Interaction in all forms—both verbal and nonverbal—is mediated by the cultural context with all its richness and nuance. What children see and hear and how others respond to them impacts their learning in both subtle and dramatic ways.

Children's *potential* to learn also hinges on social interaction. They are primed to learn when the level of challenge is just outside the realm of what they are able to do independently. Adults and more-capable siblings and peers can provide the necessary guidance and scaffolding for children to take that next step, so that subsequently, they can take it by themselves. The image of a scaffold as a temporary framework that supports learning is an apt one in helping us understand our roles as teachers. While curiosity and a sense of competence are the main reasons children are eager to learn, social interactions enable other people to cultivate that desire, reinforce children's efforts, and motivate them still further.

When adults—teachers and parents alike—show they value learning and include children in activities that naturally include academic skills like reading and using numbers, they are encouraging children's interest in and enthusiasm for learning those skills. Teachers can help parents understand the power of participating in informal activities with their children. Every day activities like cooking, building, making repairs, or playing a game *together* are powerful and satisfying learning opportunities for children and positively influence their motivation to learn.

## Children Learn Holistically

It's customary to describe children's development and learning in separate areas: social/emotional, cognitive, language, physical. But this is an artificial division because development in one area influences and is influenced by development in other areas. For example, in the same way that children's language and intellectual development are intertwined—each supporting the other—so too are their conceptual understandings. Children perceive the world as an integrated whole, not divided into bits of information in discrete categories like reading, writing, or mathematics. As children engage in activities, they naturally seek out connections

between new information and what they already know. This not only makes learning more meaningful, it makes it easier.

Integrated learning activities approximate real-world experiences because they help children make connections across content areas and construct knowledge that is relevant on a personal level. They also help children apply skills and concepts in meaningful ways. For example, the ability to differentiate attributes of objects is important in every subject area. It aids in recognizing differences in quantity, size, shape, pattern, and letters, and it enables children to compare and contrast characteristics of organisms and other natural phenomena. While integrated approaches can help children acquire basic academic skills, such as letter recognition, their value in addressing intellectual dispositions or "habits of mind" (Katz, 1993) should not be underestimated. These dispositions include a desire to make sense of their experiences, to theorize about cause and effect, and to think critically. They are also motivating factors in children's continued eagerness to learn.

The general public is accustomed to thinking of learning in specific content areas. As a result, parents may think that basic skills are best taught through direct instruction apart from a context that makes these skills meaningful. For example, parents may encourage their children to recite the alphabet, count to 10, or name colors under the assumption that their ability to do so means they understand these concepts and can apply them in other situations. They may not understand that children will be more likely to learn how to spell a word if they need it to use it to write an important message than if the word is part of a list of unrelated spelling words. Once again, teachers can help parents understand that experiences and activities through which children make connections across developmental and content areas make learning easier and more meaningful.

## Each Child's Learning Style Is Unique

Every child is naturally good at certain things and has preferred ways of learning. The key for teachers and parents is to recognize and respect each child's unique talents and to provide learning opportunities that best match his or her learning style. Howard Gardner's (1993) descriptions of nine intelligences (linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, intrapersonal, interpersonal, and existential) provide insight into the various avenues through which we all can learn. Each child possesses these competencies to a varying degree but finds learning through some channels easier. For instance, some children are sensitive to the meaning and order of words (linguistic intelligence), others to the complexity of logical systems (logical-mathematical intelligence). Some children naturally think in pictures (spatial intelligence), while still others are skilled at using their bodies (bodily-kinesthetic). When we accommodate differences in how children best learn and display knowledge, we are helping them to be successful and feel more capable as learners.

Helping parents accept and appreciate their child's unique abilities and learning styles is another way teachers can support children's learning at home. Teachers can also encourage parents to engage children in experiences that enable them to use their natural talents. And, as a result of their understanding of each child's strengths, teachers can further support parents in this process by recommending or assigning particular kinds of learning-at-home activities.

## Children Learn Through Play

Play is a catalyst for learning. Through play, children have opportunities to make sense of their experiences. Play enables them to learn and practice concepts and skills, express their

ideas and emotions, and develop symbolic capabilities. It also helps children build relationships and solve problems. Play is often described by its characteristics. It is self-initiated, spontaneous, actively engaging, intrinsically motivating, carried on for its own sake, and pleasurable. When adults provide activities and experiences that embody at least some of the characteristics of play, they are capitalizing on the power of play to encourage learning. This means that an activity that is inherently motivating, individually relevant, and engaging is a great learning activity. Playful activities can be used to build academic skills such as vocabulary and print recognition, number sense, measurement and geometry concepts, and other skills that are encapsulated in most states' curriculum standards. Of equal or greater importance, playful activities that absorb children's interest and encourage their curiosity strengthen intellectual dispositions and contribute to their eagerness to learn. And when adults play *with* children, they can take advantage of teachable moments and see child development in action.

This is perhaps *the* key to encouraging family members to participate in educational activities at home with their children. The power of play to promote learning is widely misunderstood. Teachers who enable parents and other family members to engage in playful activities with children are supporting learning and at the same time helping families better understand the role of play as a medium and context for learning. Play also encourages family togetherness, which has emotional benefits including children's feelings of self-worth and family and cultural identification.

## EARLY LEARNING PRACTICES

Besides considering how and why to encourage learning at home, you will need to plan for *what* children will learn. Understanding age-related and individual characteristics and needs are important factors in the process of recommending to family members how they can best support children's learning. In addition, you are or will be charged with organizing and planning curriculum relative to grade-level learning outcomes. These considerations will determine the kinds of home activities and concrete learning materials from which children are most likely to benefit.

### Curriculum Guidelines

State and school district standards define small units of knowledge and skills that make up academic program goals and desired learning outcomes. Whether termed guidelines, frameworks, foundations, or standards, they share many similarities in outlining grade-level expectations for learning in language, literacy, mathematics, science, and other academic domains. It should be noted, however, that academic goals are often different from the foundational skills (e.g., using language to express oneself or focusing attention on purposeful activities) and intellectual dispositions (e.g., curiosity or persistence) that support learning in both the short and long term. These underlying skills are more likely to be included in early learning standards in preschool than in kindergarten or primary-grade standards.

Ideally, children's experiences in—as well as outside of—school should help them reach both intellectual and academic goals. Many curriculum frameworks mention the importance of family involvement and schools' support for parents as partners in the education and development of children. The notion that schools and families should work collaboratively to ensure that children engage in optimal learning experiences is one supported by the No Child Left Behind Act of 2001. While guidelines may mention the importance of engaging families in school curriculum, specific strategies to help children reach desired outcomes or ways to involve families in the process are left up to each district, school, and teacher.

As a teacher, you are guided to some extent by grade-level standards that usually describe outcomes in each content area. Understanding curriculum approaches in each of these areas can aid you in applying learning principles to help each child progress relative to these standards. Appropriate curriculum encourages active learning, is child-centered, and promotes intellectual dispositions as well as academic knowledge. It often integrates content areas. Addressing curriculum standards appropriately requires intentionality. Part of intentionality is conveying to others how child-centered learning experiences are compatible with standards. What we know about child-centered learning and best practice in each curriculum field is informed by research and supported by professional organizations. With sensitivity to family characteristics and advanced planning, you can directly involve family members in fostering children's knowledge and skills in all areas of the curriculum. And in the process, you are helping families become more aware of appropriate approaches that encourage children to be engaged and enthusiastic learners.

## Language and Literacy

*Children are made readers on the laps of their parents.*

—Emilie Buchwald

Language and literacy acquisition go hand-in-hand and continue to develop as children grow. Experiences with oral language lay the foundation for later literacy learning. For children to learn to read and write, both communication and literacy skills need to come together. The more children hear and use language to communicate, the greater their understanding of the phonological (sound), syntactic (rules), semantic (meaning), and pragmatic (usage) aspects of language. The more experiences they have with print in their environments and with books, the better they understand that print conveys messages and relies on basic conventions. Appropriate experiences with print also encourage such literacy specific skills as letter recognition, sound-symbol correspondence, encoding, decoding, and phonemic awareness.

One-on-one conversations, storybook reading, and activities that include words in spoken or written forms provide opportunities for children to deepen their language and literacy development. Activities such as these are also fundamental to children's concept development and motivation to learn. Interaction is key. A joint position statement entitled "Learning to Read and Write," published by the International Reading Association (IRA;1998) and the National Association for the Education of Young Children (NAEYC) describes appropriate experiences and teaching to support literacy learning from preschool through the primary grades. In preschool, these approaches are

- Positive, nurturing relationships with adults who engage in responsive conversations with individual children, model reading and writing behavior, and foster children's interest in and enjoyment of reading and writing;
- Print-rich environments that provide opportunities and tools for children to see and use written language for a variety of purposes, with teachers drawing children's attention to specific letters and words;
- Adults' daily reading of high-quality books to individual children or small groups, including books that positively reflect children's identity, home language, and culture;
- Opportunities for children to talk about what is read and to focus on the sounds and parts of language as well as the meaning;

- Teaching strategies and experiences that develop phonemic awareness, such as songs, fingerplays, games, poems, and stories in which phonemic patterns such as rhyme and alliteration are salient;
- Opportunities to engage in play that incorporates literacy tools, such as writing grocery lists in dramatic play, making signs in block building, and using icons and words in exploring a computer game; and
- Firsthand experiences that expand children's vocabulary, such as trips in the community and exposure to various tools, objects, and materials.

In addition to those listed above, some of the appropriate experiences in kindergarten and the primary grades include

- Daily experiences of being read to and independently reading meaningful and engaging stories and informational texts;
- Daily opportunities and teacher support to write many kinds of texts for different purposes, including stories, lists, messages to others, poems, reports, and responses to literature;
- Writing experiences that allow the flexibility to use nonconventional forms of writing at first (invented or phonic spelling) and over time move to conventional forms;
- An intellectually engaging and challenging curriculum that expands knowledge of the world and vocabulary; and
- Adaptation of instructional strategies or more individualized instruction if the child fails to make expected progress in reading or when literacy skills are advanced.

### *Language and Literacy Learning at Home*

Child development experts and educators understand that children's language and literacy skills begin at birth, long before they are enrolled in formal educational settings. Parents and other family members may not have that same level of understanding or know just how important they are in encouraging children's language and literacy. However, with your support and guidance, they too can use the approaches listed above to engage in interactive experiences that enhance the skills their children already possess. Without family involvement, children's potential progress is likely to be diminished.

Specifically, this means helping families understand that exposure to language- and print-rich environments is key. They may not know that children need multiple experiences encountering and using language and literacy in a variety of meaningful contexts if they are to become proficient readers and writers. Or that interactions within their family provide an important context—if not *the* most important context—for children to learn to use spoken and written language to communicate effectively.

You can help parents and others understand that the single best way to encourage children's literacy is to ensure they have daily experiences with high-quality books and opportunities to talk with responsive adults about what they hear and see in the books. This process begins with access to books, something that varies from family to family and community to community. While all children benefit from taking high-quality books home from school, it's especially important for disadvantaged children who may not otherwise have age-appropriate books available. When children listen to stories and interact with books, their understandings of the functions, forms, and conventions of print are enhanced. Shared book reading can also encourage natural and spontaneous exchanges that increase children's understanding of the story, stimulate their language and vocabulary, and develop their abstract and critical thinking skills.

Activities that enable family members to extend book reading encourage children to focus on the ideas presented in the book as well as specific language and literacy skills, such as

sound-symbol relationships and story narrative. Both books and activities are natural conversation starters and can motivate adults to talk with children about things that are personally meaningful and culturally relevant.

Parent-child interactions during daily routines also provide rich context for language and literacy development. The simple act of talking about experiences and activities together enables parents to use those experiences to positively influence children's learning in general and as a springboard to informally teach specific language and literacy skills.

## Mathematics and Science

*I had my eyes opened to look for science and math in everything.*

—Parent who used parent kits in a library-based science and mathematics program that addressed many early-education standards in mathematics, science, and literacy

Conceptual development in mathematics and science share several similarities. Both rely on first-hand encounters with the environment and active engagement with concrete or manipulative materials that enable children to explore, see relationships, and problem solve. Both involve classification, comparisons of similarities and differences, and some form of representation or communication of these relationships. Measurement is used in both to capture observations. Children's understanding is enhanced when mathematics and science are integrated with activities in other content areas. For instance, cooking and gardening encourage children to count, measure, observe, and compare. In addition to similarities shared by these two disciplines, guidelines from professional organizations describe how adults can foster children's learning in each area.

*Early Childhood Mathematics: Promoting Good Beginnings* is a joint position statement published by National Association for the Education of Young Children (NAEYC) and the National Council for Teachers of Mathematics (NCTM; 2002). It describes high-quality mathematics education for young children and includes 10 research-based recommendations:

1. Enhance children's natural interest in mathematics and their disposition to use it to make sense of their physical and social worlds.
2. Build on children's experience and knowledge, including their family, linguistic, cultural, and community backgrounds; their individual approaches to learning; and their informal knowledge.
3. Base mathematics curriculum and teaching practices on current knowledge of young children's cognitive, linguistic, physical, and social-emotional development.
4. Use curriculum and teaching practices that strengthen children's problem-solving and reasoning processes as well as representing, communicating, and connecting mathematical ideas.
5. Ensure that the curriculum is coherent and compatible with known relationships and sequences of important mathematical ideas.
6. Provide for children's deep and sustained interaction with key mathematical ideas.
7. Integrate mathematics with other activities and other activities with mathematics.
8. Provide ample time, materials, and teacher support for children to engage in play, a context in which they explore and manipulate mathematical ideas with keen interest.

9. Actively introduce mathematical concepts, methods, and language through a range of appropriate experiences and teaching strategies.
10. Support children's learning by thoughtfully and continually assessing all children's mathematical knowledge, skills, and strategies.

There are three main dimensions of science. The first aspect, and the one that most often comes to mind, is content or scientific knowledge. Science curriculum is often structured by areas within science (physical science, life science, earth and space science, science and technology) to provide experiences through which children can acquire content knowledge. And, indeed, the National Science Education Standards organize science content standards in this fashion for K–4 (National Committee on Science Education Standards and Assessment, 1996). While content knowledge is important, the other two dimensions of science may be even more significant in early childhood. They are science processes—the foundation of the scientific method—and attitudes and dispositions about science. Without curiosity, a sense of wonder, and a feeling of capability to learn about science, children may lack the motivation to acquire science content knowledge. Helping them develop the intellectual dispositions to do science can be more difficult in the upper grades than it is in early childhood. The early years provide that opportunity.

It has been said that young children are natural born scientists. They are innately interested in the world around them and eager to learn about it. Just like scientists, they naturally use the science processes of inquiry and investigation as they build their own theories of how things work. Effective instructional practice in science provides time, space, and equipment for children to conduct investigations. It also encourages children's systematic use of basic science process skills. These include observing, classifying and comparing information, measuring, communicating observations and information collected, inferring cause and effect relationships, predicting outcomes, and experimenting by manipulating variables.

However curriculum and instruction are organized, the main goal in early childhood should be to build on the processes children are already predisposed to using to figure things out so that they begin to think like scientists. To this end, it is more appropriate for children to investigate fewer topics in depth, so they have opportunities to use science process skills systematically, to learn to think critically, and to gain confidence in their abilities as problem solvers, than it is to tackle too many topics. It is better to enable children to "uncover" a topic than to cover the curriculum in a superficial fashion (Helm & Katz, 2001).

### *Mathematics and Science Learning at Home*

Families play a central role in children's mathematical development and science understandings, one that is analogous to their role in children's literacy development. Children's early experiences at home and in the community shape their later abilities and interests and can build a sound mathematical and science foundation.

Several of the NAEYC-NCTM (2002) recommendations highlight the importance of families in children's acquisition of mathematical knowledge. One way you can encourage children's in-depth and sustained involvement in math activities is to help families extend and develop math experiences outside of school. Furnishing families with information about everyday mathematics experiences as well as supplying hands-on resources in the form of games and manipulative materials enables them to engage children in mathematical learning experiences tailored to their interests, languages, and home cultures (Edge, 2000). Playful activities that encourage counting, measuring, block constructions, and that include board and card games can also help children and families develop positive attitudes toward math.

You can also help families see the many opportunities for science experiences within their homes and communities. Kitchens and back yards are wonderful science labs, full of hands-on opportunities for children to learn about science. Encouraging children's engagement in inquiry and investigations at home, where time constraints are likely to be fewer than they are within daily classroom schedules, allows for the kind of sustained involvement that leads to in-depth understanding. It also increases parent involvement and interest. When parents have information and materials to engage children in learning about natural phenomena, they are able to extend those experiences in ways not always possible within the classroom. They can seize the moment and follow children's lead and in the process reinforce positive attitudes about science and children's belief in their own capabilities.

Many child-development experts have voiced concerns about children's disconnection from the natural world (Kahn & Kellert, 2002). Children seem to be increasingly plugged into television and electronic games when inside and engaged in organized sports when outside. You can encourage families and children to become involved in nature-based science experiences that inspire a sense of wonder and curiosity, the driving forces behind science. Moreover, personal contact with nature makes it more likely that children will become conscientious stewards of the earth. Science content related to ecology or the environment cannot replace the attitudes children develop from first-hand experiences in the natural world. So, when you help families understand the learning that can come from watching a spider build a web, following an ant trail, or observing pigeon or sparrow behavior, you are helping to empower the next generation in caring for the planet and instilling scientific habits of mind.

Given appropriate support from the school, most children will use science process skills (observing, communicating, classifying, measuring, inferring, and predicting) at home to understand science concepts at a deeper level. Likewise, they can explore mathematical relationships, engage in problem-solving activities, and document mathematical information. When you enable families to engage together in appropriate home-based math and science activities, you are enhancing the quality of classroom math and science instruction. With your support, family members can reinforce basic concepts and skills as they engage with children in informal activities and investigations. At the same time, you are enabling families to help children gain confidence in their own abilities as budding scientists and mathematicians. The power of family members' interest and participation should not be underestimated as a motivating force to encourage learning in these areas.

## The Creative Arts

> *Many educators and parents still differentiate between a time for learning and a time for play without seeing the vital connection between them.*
>
> —Leo Buscaglia, *Love in the Classroom*

As you and your school struggle to meet the requirements of No Child Left Behind with its focus on reading and mathematics, there is often little time for children to engage in creative arts activities. Nonetheless, the creative arts—music, movement, dance, creative dramatics, and the visual arts of drawing, painting, and sculpting—play a central role in early childhood education and should be part of children's daily experiences. They invite children to experiment, invent, and express their thoughts and feelings as they interpret and represent their experiences in unique ways. In the process, the arts promote children's positive attitudes about inquiry, problem solving, and confidence in their capacity to learn. In addition, children with a variety of talents and learning styles can enhance and demonstrate their understanding through the arts.

The arts help children make their thinking visible. For example, the visual arts enable children to use "graphic languages" (Katz, 1993) to represent their experiences and ideas in ways they are not yet able to articulate in words. Creating something new through any of these art forms is exciting for children. No matter what their creations appear to be to others, the process of expressing themselves in their own unique ways helps them make sense of their experiences and is intensely engaging and personally satisfying.

The arts also provide many avenues for engaging children in literacy, math, science, and technology. Take drawing for example. Children draw stories and create shapes and patterns. Drawing is both a scientific tool requiring careful observation, and it is a means of communication; it is both a science process and literacy skill. And, of course, it helps refine hand-eye coordination and fine motor skills.

With increasingly crowded classroom curricula and growing pressures on teachers to devote more time to reading and mathematics instruction, the creative arts along with opportunities for creative thinking and physical activity are frequently pushed aside. In response, professionals from many disciplines are alarmed that children have diminished opportunities to engage in the kinds of creative expression and learning that the arts make possible. One way to compensate for these limited opportunities is to help families provide them outside of school.

### *Creative Arts Learning at Home*

You can help families recognize the essential value of creative expression not only as a means of representation but also as a way to facilitate development and learning in other areas of the curriculum. With your support, families can make it possible for children to engage in the kinds of creative arts activities that were more likely to be part of the school day in the past. To leverage the learning opportunities the arts provide, you can help families understand the importance of

- Giving children extended, unhurried periods of time to explore materials and use them in their own ways;
- Providing space where children can leave unfinished work and come back to it later;
- Experimenting with movement, sound, dramatics, and other artistic media;
- Encouraging imagination, creativity, and problem solving;
- Participating with their children in joint projects to reinforce family identity; and
- Helping children gain appreciation for how their own and other cultures are reflected in the arts.

When you provide families with materials and ideas for activities through which they can make music, dance, draw, tell stories, and play active games together you are helping families recognize the value of the arts as a means to enhance children's learning. In the process, you can also reinforce the idea that a few basic materials combined with common household items are all that are needed to encourage creative problem solving and expression.

Even when your classroom teaching practices are based on sound principles of learning informed by professional organizations' guidelines, they can be enhanced through family involvement. Given current curriculum mandates and the overemphasis on test scores as evidence of students' achievement, it is likely your class schedule is more crowded than ever. It is also likely there is limited time for playful or creative activities or for the kinds of one-on-one interactions that so effectively support children's learning in all areas. Enlisting the participation of family members is one way to compensate indirectly for the pressures imposed by curriculum mandates and by the challenges you face in meeting individual needs within a group of children with diverse characteristics. With your support, families can become directly involved in children's learning in all areas of the curriculum and can extend and enhance the school-based experiences you provide. The result is a positive impact on students' success.