On a recent tour of Bing with a group of prospective parents, I overheard one parent say, “Yes, it is a beautiful school, but the children are really just playing and not learning anything.” I took a deep breath and vowed to address this misconception to the wider Bing community! Here I will attempt to explain how for young children learning and play are deeply entwined. Like yin and yang, play and learning are not only complementary, they are additive—their sum is always greater than their parts.

Play is how young children learn. It is an innate, biological, universal and evolutionary imperative. Yet, for the past four decades, the freedom and opportunity for play have steadily declined to a point that requires our attention and our immediate action. The window of opportunity to positively impact a young child’s development is very brief, and we have an obligation to make the most of it.

A growing body of research in neuroscience reveals that a child’s brain develops rapidly, and that play is crucial to that development. The brain reaches 80% of its size by age 3, is almost fully developed by age 5, and by age 7 all of the synapses in the brain will be formed. Synapses are the connections between neurons, or brain cells, that will enable their future learning. And, at a Bing Parent Seminar, Stanford neurosurgeon Jamshid Ghajar and Stanford physician Angela Lumba-Brown shared that recent evidence from neuroscience has shown that real-world, 3-D play by young children is what best creates those synapses in their brains.

Although early childhood educators and parents certainly want the best for young children, teaching in a didactic fashion has been documented to have disastrous effects, while studies have shown that play-based education that combines hands-on learning with child-initiated play has been extremely effective, stated Joan Almon, co-founder of the Alliance for Childhood, and Edward Miller, a founding partner of the U.S. Alliance for Childhood, in their white paper “The Crisis in Early Education, A Research-Based Case for More Play and Less Pressure.” According to leading education scholar Lilian Katz, building knowledge and skills is of little use if children do not have the disposition to use them. It is therefore essential not only to foster knowledge and skills, but also to develop children’s confidence and propensity to use and build on their knowledge and skills.

With good intentions and bad assumptions, play has slowly and steadily been taken away from young children. In his
TEDx Talk, Peter Gray, psychologist from Boston College, eloquently explains this decline in play over the past 50 years. This decline in play is a result of many factors, and I will point out two major ones.

One contributor to the loss of play is the well-meaning, nationally mandated educational initiative (e.g., No Child Left Behind, 2002; Common Core, 2010) that comes with strict standards, testing and accountability. An unintended consequence of these programs has been the “push-down” effect, where kindergarten teachers and early childhood educators are pressured to prepare children early for future tests, using curricula that are too advanced for the children’s developmental stage.

Another contributor to the decline in play for young children has been technology. In an effort to help young children learn in our world of rapidly advancing technology—where newer is nearly always seen as better—the latest technologies, widely accessible and often marketed as “smart,” have been seen as an easy answer, even in the absence of supporting evidence. These include flashcards, videos, entertainment devices and programs, and now tablets and smartphones.

In both the implementation of mandatory testing programs and the early adoption of unproven new technologies, play has been viewed as frivolous and something done at the expense of learning. This assumption could not have been more wrong, and the loss of opportunity for young children to play is something we must correct.

A young child can watch a video about building with blocks, or move blocks around a screen with a finger for hours, but these activities will never teach a young child how to actually build with real blocks. Children who experience firsthand building with unit blocks are introduced to subjects like geometry (points, lines, planes and figures), number sense (use and recognition of numbers, one-to-one correspondence, part/whole relationships) and algebra (ordering and classifying while playing with blocks, solving for $x$ by filling a space with a block). Then there is all of the scientific thinking that playing with blocks supports—understanding physical laws such as gravity, balance, depth and width, and practicing of trial and error, critical reasoning and making hypotheses.

**Benefits of Play in Terms of Kindergarten Readiness**

Major theorists and decades of child development research support the benefits of play. As renowned psychologist Jean Piaget explained, children are by nature curious and will reach out to people and the environment because they are intrinsically motivated to learn and interact in the world around them. The quality of play affects children’s development and eventually their readiness for school. “Play can facilitate a child’s development from lower to higher functions and from understanding simple concepts to performing advanced mental activities.”

“It seems to me that from the point of view of development, play is not the predominant form of activity, but is, in a certain sense, the leading source of development in preschool years.”

—Lev Vygotsky

There are four crucial areas of development:

**Cognitive development:** Play helps children develop the ability to engage in symbolic and abstract thought—for example, children will push a table and chairs together and instantly turn them into a firetruck. A block might be an airplane or a car. Young children learn abstract thought through play. As scholars Kathleen Glasscott Burris and Ling-Ling Tsao stressed, “Children need firsthand experience to construct knowledge, develop abstract thinking and generalize their knowledge to new situations.” An important element of cognition is execu-
tive function: a set of cognitive processes governed by the brain’s prefrontal cortex, including impulse control, emotional control, flexible thinking, using working memory, self-monitoring, planning, predicting, prioritizing, task initiation, persisting through challenges, paying attention, organizing and managing one’s thoughts, actions and emotions to get things done. Practicing executive function is a core benefit of play, especially pretend play. Examples of cognitive development skills include:

**Early math skills:** Children build their number sense through the countless play-driven activities that take place every day in the classroom. When a child uses the hole punch and colored construction paper at the design table to create a handful of shapes, he builds his one-to-one correspondence as he touches and counts aloud each of the shapes. Perhaps he then orders them into groups or sets based on color, another part of number sense. Across the room, another child is finding just the right unit block to finish her road. Thinking and playing spatially is the hands-on version of geometry. Blocks are multiples and fractions of the basic unit. Bing teachers engage in “math talk” whenever possible, using math language such as up, down, more, less, under, over, set/group and even add or subtract.

**Language development:** Research has shown that through rich pretend play using open-ended materials, children use more complex and more frequent oral language and increase their ability to hear, identify and manipulate individual sounds in spoken words. In pretend play, children tend to speak longer and use more words. The reason for this may be that children are imitating adult-like roles and adult-like speech, which translates to more details in their oral language. Also, play is a springboard for early literacy. By providing writing tools and appropriate books in the classroom or home environment, we allow children to naturally engage with them in meaningful ways.

**Creativity:** Play fosters creativity and flexibility in thinking. There is no right or wrong way to do things, and the possibilities are limitless. Play allows children to use their creativity while they develop their imagination, dexterity, and physical, cognitive and emotional selves. Children who have spent extended periods of role playing (dramatic play) are associated with higher measures of creativity and creative problem-solving, according to scholar Olivia Saracho. Not only does rich dramatic play lead to higher creativity, it also leads to greater language development, which supports early reading success—skills that are needed for kindergarten readiness.

“The human hand in manipulation of objects is the hand in search of a brain, the brain is in search of a hand, and play is the medium in which these two are linked in the best way.”
— Stuart Brown

**Social development:** When the theme of the play is the children’s idea, they learn to negotiate and cooperate: They learn how to work in groups, how to make decisions, resolve conflicts and be advocates for themselves. Pretend play is especially conducive for social development. A key attribute of pretend play is that children must make inferences about their playmate’s mental state. For instance, when one child has a playmate who announces that a stick is a wand, that child has to deduce that the playmate is pretending and that the true identity of the stick is different from the pretend identity. With this growing understanding comes a greater ability to take another’s perspective—and with that comes the development of social skills, according to Piaget.

**Emotional development:** Play is an excellent means to support emotional development. Anxiety, frustration, trauma, and dealing with conflict and impulses are just some of the emotional issues that can arise during play. Play is the ideal place to learn how to manage these feelings. During play, children can learn to articulate their feelings and thoughts, saying, for instance, “It hurt my feelings when Diego wouldn’t let me play in the house with the other children.” Working through these feelings and emotions in play scenarios allows children to practice developing strategies for the next time—and will build crucial skills for a lifetime. This is referred to as self-regulation.

“The key to developing self-regulation is play, lots and lots of dramatic and pretend play—complex, make-believe play lasting for hours, even days,” wrote Deborah Leong in Tools of the Mind. Children can control their impulses much better in play than in non-play. They are eager for the play to continue, so going with the flow of the game and the implied rules of the game is essential. Children will remind their peers if the play is getting off track and will prompt them back into character. For instance, if the baby in the family is running around, her playmates will remind her that the baby doesn’t know how to run yet.

**Physical development and health:** Unlike passive entertainment or a didactic approach to learning, active play builds healthy bodies. In fact, the American Association of Pediatrics asserts that active play may be a solution to our country’s obesity crisis. It is obvious that outdoor play contributes to children’s physical development, in particular their motor development. Less obvious is the learning that happens when children test their own physicality and endurance: Can I swing all the way across the monkey bars? Can I pump my legs to make the swing go higher and faster? Why do I feel out of breath when I run all the way to the gate?

Of all of the many aspects of child development that are strengthened by play, two competencies stand out: self-regulation and executive function. According to a guide to executive function and self-regulation published online by Harvard University’s Center on the Developing
Child, these two are the keys to short-term and long-term success in school, and life in general: having the mental capacities of executive function and self-regulation are like having a highly effective air traffic control system to manage the arrivals and departures of dozens of planes on multiple runways. Children’s brains have to hold on to their working memory and focus their thinking, filter distractions and switch gears. Children are not born with these skills, they have to learn them, and they are best learned through play—in particular, pretend play. Many developmental psychologists are now looking at self-regulation skills as a better predictor of success in school than IQ, but the important takeaway is that both of these skills are strengthened again through rich pretend play—repeat often! Other brain components of executive function are working memory—the ability to retain and manipulate distinct pieces of information over a short period of time (e.g., the ability to recall the steps of a recipe)—and mental flexibility—the ability to shift attention based on different circumstances. As children learn to control emotions and impulses so that the play can continue, they strengthen their self-control.

How Do We Define Play?

It seems that there are as many definitions for play as there are experts in the field. However, most theorists agree that the key attributes of play are:

- Intrinsically motivated
- Controlled by the players
- Concerned with process rather than product
- Nonliteral
- Free of externally imposed rules
- Characterized by the active engagement of the players

If parents and teachers want young children to be best prepared for formal education, they must let them play for as long as they can. Play enables a child to not only develop cognitively, but socially, emotionally and physically—and that is what readiness is all about. Readiness is not about memorizing facts, colors, shapes, numbers and letters. Readiness is not about having a teacher show flashcards about shar-

**Play gives children opportunities to explore the world, interact with others, express and control emotions, develop their symbolic and problem-solving abilities, and practice emerging skills.**

— NAEYC, 2012

Child, these two are the keys to short-term and long-term success in school, and life in general: having the mental capacities of executive function and self-regulation are like having a highly effective air traffic control system to manage the arrivals and departures of dozens of planes on multiple runways. Children’s brains have to hold on to their working memory and focus their thinking, filter distractions and switch gears. Children are not born with these skills, they have to learn them, and they are best learned through play—in particular, pretend play. Many developmental psychologists are now looking at self-regulation skills as a better predictor of success in school than IQ, but the important takeaway is that both of these skills are strengthened again through rich pretend play—repeat often! Other brain components of executive function are working memory—the ability to retain and manipulate distinct pieces of information over a short period of time (e.g., the ability to recall the steps of a recipe)—and mental flexibility—the ability to shift attention based on different circumstances. As children learn to control emotions and impulses so that the play can continue, they strengthen their self-control.

How Do We Define Play?

It seems that there are as many definitions for play as there are experts in

- Intrinsically motivated
- Controlled by the players
- Concerned with process rather than product
- Nonliteral
- Free of externally imposed rules
- Characterized by the active engagement of the players

If parents and teachers want young children to be best prepared for formal education, they must let them play for as long as they can. Play enables a child to not only develop cognitively, but socially, emotionally and physically—and that is what readiness is all about. Readiness is not about memorizing facts, colors, shapes, numbers and letters. Readiness is not about having a teacher show flashcards about shar-

**Play gives children opportunities to explore the world, interact with others, express and control emotions, develop their symbolic and problem-solving abilities, and practice emerging skills.**

— NAEYC, 2012

Child, these two are the keys to short-term and long-term success in school, and life in general: having the mental capacities of executive function and self-regulation are like having a highly effective air traffic control system to manage the arrivals and departures of dozens of planes on multiple runways. Children’s brains have to hold on to their working memory and focus their thinking, filter distractions and switch gears. Children are not born with these skills, they have to learn them, and they are best learned through play—in particular, pretend play. Many developmental psychologists are now looking at self-regulation skills as a better predictor of success in school than IQ, but the important takeaway is that both of these skills are strengthened again through rich pretend play—repeat often! Other brain components of executive function are working memory—the ability to retain and manipulate distinct pieces of information over a short period of time (e.g., the ability to recall the steps of a recipe)—and mental flexibility—the ability to shift attention based on different circumstances. As children learn to control emotions and impulses so that the play can continue, they strengthen their self-control.

How Do We Define Play?

It seems that there are as many definitions for play as there are experts in

- Intrinsically motivated
- Controlled by the players
- Concerned with process rather than product
- Nonliteral
- Free of externally imposed rules
- Characterized by the active engagement of the players

If parents and teachers want young children to be best prepared for formal education, they must let them play for as long as they can. Play enables a child to not only develop cognitively, but socially, emotionally and physically—and that is what readiness is all about. Readiness is not about memorizing facts, colors, shapes, numbers and letters. Readiness is not about having a teacher show flashcards about shar-

**Play gives children opportunities to explore the world, interact with others, express and control emotions, develop their symbolic and problem-solving abilities, and practice emerging skills.**

— NAEYC, 2012

Child, these two are the keys to short-term and long-term success in school, and life in general: having the mental capacities of executive function and self-regulation are like having a highly effective air traffic control system to manage the arrivals and departures of dozens of planes on multiple runways. Children’s brains have to hold on to their working memory and focus their thinking, filter distractions and switch gears. Children are not born with these skills, they have to learn them, and they are best learned through play—in particular, pretend play. Many developmental psychologists are now looking at self-regulation skills as a better predictor of success in school than IQ, but the important takeaway is that both of these skills are strengthened again through rich pretend play—repeat often! Other brain components of executive function are working memory—the ability to retain and manipulate distinct pieces of information over a short period of time (e.g., the ability to recall the steps of a recipe)—and mental flexibility—the ability to shift attention based on different circumstances. As children learn to control emotions and impulses so that the play can continue, they strengthen their self-control.

How Do We Define Play?

It seems that there are as many definitions for play as there are experts in

- Intrinsically motivated
- Controlled by the players
- Concerned with process rather than product
- Nonliteral
- Free of externally imposed rules
- Characterized by the active engagement of the players

If parents and teachers want young children to be best prepared for formal education, they must let them play for as long as they can. Play enables a child to not only develop cognitively, but socially, emotionally and physically—and that is what readiness is all about. Readiness is not about memorizing facts, colors, shapes, numbers and letters. Readiness is not about having a teacher show flashcards about shar-

**Play gives children opportunities to explore the world, interact with others, express and control emotions, develop their symbolic and problem-solving abilities, and practice emerging skills.**

— NAEYC, 2012

Child, these two are the keys to short-term and long-term success in school, and life in general: having the mental capacities of executive function and self-regulation are like having a highly effective air traffic control system to manage the arrivals and departures of dozens of planes on multiple runways. Children’s brains have to hold on to their working memory and focus their thinking, filter distractions and switch gears. Children are not born with these skills, they have to learn them, and they are best learned through play—in particular, pretend play. Many developmental psychologists are now looking at self-regulation skills as a better predictor of success in school than IQ, but the important takeaway is that both of these skills are strengthened again through rich pretend play—repeat often! Other brain components of executive function are working memory—the ability to retain and manipulate distinct pieces of information over a short period of time (e.g., the ability to recall the steps of a recipe)—and mental flexibility—the ability to shift attention based on different circumstances. As children learn to control emotions and impulses so that the play can continue, they strengthen their self-control.

How Do We Define Play?

It seems that there are as many definitions for play as there are experts in

- Intrinsically motivated
- Controlled by the players
- Concerned with process rather than product
- Nonliteral
- Free of externally imposed rules
- Characterized by the active engagement of the players

If parents and teachers want young children to be best prepared for formal education, they must let them play for as long as they can. Play enables a child to not only develop cognitively, but socially, emotionally and physically—and that is what readiness is all about. Readiness is not about memorizing facts, colors, shapes, numbers and letters. Readiness is not about having a teacher show flashcards about shar-

**Play gives children opportunities to explore the world, interact with others, express and control emotions, develop their symbolic and problem-solving abilities, and practice emerging skills.**

— NAEYC, 2012

Child, these two are the keys to short-term and long-term success in school, and life in general: having the mental capacities of executive function and self-regulation are like having a highly effective air traffic control system to manage the arrivals and departures of dozens of planes on multiple runways. Children’s brains have to hold on to their working memory and focus their thinking, filter distractions and switch gears. Children are not born with these skills, they have to learn them, and they are best learned through play—in particular, pretend play. Many developmental psychologists are now looking at self-regulation skills as a better predictor of success in school than IQ, but the important takeaway is that both of these skills are strengthened again through rich pretend play—repeat often! Other brain components of executive function are working memory—the ability to retain and manipulate distinct pieces of information over a short period of time (e.g., the ability to recall the steps of a recipe)—and mental flexibility—the ability to shift attention based on different circumstances. As children learn to control emotions and impulses so that the play can continue, they strengthen their self-control.

How Do We Define Play?

It seems that there are as many definitions for play as there are experts in
One of the winners of 2019’s Turing Award for artificial intelligence gave a lecture not long ago with the reassuring title, How Does the Brain Learn So Quickly? The unspoken subtitle was: And How Come AI Does Not? It’s a frustration for the AI industry that its work affects more and more of our daily lives, but however clever it gets, the awardee said, “we’re missing an essential piece which evolution has figured out but we haven’t figured out yet.” In short, AI still isn’t as smart as your preschooler—especially when it comes to language.

How do our children beat the brainiest systems on the planet, going from speechless and wordless infants in cribs to the garrulous little peeps we know and love at the breakfast table? It’s not just imitation they master, it’s generalization. It’s not just what’s said—and not said—that they comprehend, it’s what’s meant. Amazingly, most children learn complex language after just a few years’ immersion in it, seemingly by osmosis.

The way they do this is unfathomably clever, so Michael C. Frank, Ph.D., the David and Lucile Packard Professor of Human Biology in the Department of Psychology, is trying to fathom it. Early-life language exposure is critical to later language proficiency and school performance. And, as Frank noted in his Distinguished Lecture at Bing this spring, existing research suggests “language ability is quite stable over lifespan.” Understanding more about it could be helpful for us all.

Frank works at the intersection of social cognition and language, studying how children grasp language from an early age. He started with a massive dataset of research on children from the MacArthur-Bates Communicative Development Inventory—detailed parent reports capturing information, in nearly real time, about children’s developing abilities in early language, including vocabulary comprehension, production, gestures and grammar. With the CDI as a foundation, he has built Wordbank (wordbank.stanford.edu)—a site for archiving, sharing, and exploring anonymized data in a range of languages including Croatian, English, Russian, Turkish and many more. It’s designed so anyone can explore both child-level and item-level data within and across languages: How many words do English-speaking girls produce between 16 and 24 months? How many children say “dog” at 15 months? A surprisingly good measure of early language development, the CDI enables Frank to take “a bigger data approach” to understanding how babble becomes so much more. He has analyzed the research on 75,144 children in 29 languages, data that is self-reported by parents of young children. So, as Frank puts it, “We’ve got the most reliable measure of a 2-year-old, which isn’t very reliable.” (No offense taken.) But it’s a good start and offers some salient insights. First, there’s huge language-learning variability around the world but remarkable consistency of first words across languages. Turns out “babies’ priorities seem to be quite similar,” whether they’re in India or Indianapolis. Words like *peekaboo*, *sister*, *daddy*, *mommy* and *milk* keep cropping up. Animals, body parts and sounds are popular too.

Of course, culture plays its part. A century ago, says Frank, “few 5-year-olds knew colors; now, most self-respecting 3-year-olds know them.” This is likely because we didn’t talk about them as much in 1900 as we do now—simple but true. But over the years some language subsets do remain constant. Time, for instance, is conceptual and consistently harder to grasp. When she was almost 3, Professor Frank’s daughter told him, “My baby spit up three times last year and 79 times last night.”

The structure of a language influences the kind of words you learn in it. Overall, children learning language tend to have a preference for nouns, especially when they know more words. Exceptions are Cantonese and Mandarin, which have a positive verb bias. You can say the equivalent of “Look, walking!” and it’s understood a person is involved. For young children, the growth of grammar is also closely linked to the growth of vocabulary—and, as Frank says, “The more words you know, the stronger your ability to combine them.” Interestingly, little girls 18-36 months tend to learn more words than little boys, wherever they are in the world. First-borns seem quicker to learn language than younger sibs.
These facts are great to have in your back pocket. But what, exactly, are the steps little people need to take to learn language, and can we help them? Language includes phonetics, phonology, morphology, syntax, semantics, pragmatics. How does a small person, one who’s still quite happy to eat soap, make sense of all this? Here’s where it gets interesting.

As a 2018 Cognitive Science paper from Emmanuel Dupoux points out, “Given the multi-layered structure of language, one could expect a stage-like developmental tableau where acquisition would proceed as a discrete succession of learning phases organized logically or hierarchically (e.g., building linguistic structure from the low level to the high levels).” But, he adds, “This is not what is observed.”

“For instance, infants start differentiating native from foreign consonants and vowels at six months, but continue to fine-tune their phonetic categories well after the first year of life.” Or, as Professor Frank puts it: “There are a lot of different trajectories. Kids take a lot of different routes to language.” And language acquisition takes place at all levels more or less simultaneously as children grow. Bilingualism and signing are very natural.

Language learning is a lot messier than one neat schematic curve, bending up and to the right. Those who show faster language growth at a younger age tend to learn more nouns and combine words less—they’re called “referential” learners. Those who show slower growth tend to choose fewer nouns and do more combining of words and are called “expressive.” But each kid finds their own way. There’s no telling which it will be.

One thing we all share, of course, is the size of our brains—which affects how we learn language and lots else. The human brain has a capacity to learn about 10 to the 14th (100 trillion) parameters—that is, to make that many synaptic connections between neurons. But we only live for about 10 to the 9th (1 billion) seconds. That’s 100,000 parameters for each second of life. So, as renowned AI expert Geoff Hinton puts it, “we have a lot more parameters than data. This motivates the idea that we must do a lot of unsupervised learning.”

“Unsupervised” is the technical AI term for learning from prediction, perception, inference, observation—not instruction. It’s AI’s holy grail—and our human default setting. Linguistically in particular, children seem to learn the most, especially early on, from the continuous stream of perception they get from the world. It helps their brains predict the past or future based on the present. It helps them envision whole parcels of knowledge based on parts. They fill in the gaps themselves.

For a long time, the world of AI has been dreaming of mastering unsupervised learning or training, while it’s stuck with the supervised kind (large, labelled data sets, instructing machines what to do). As Dupoux’s paper puts it, these kinds of “machine learning procedures would correspond to a caricature of 19th-century schooling: the learner, initially a kind of tabula rasa, is relentlessly fed inputs paired with desired responses, which are annotations of the input provided by a human supervisor. The drill is repeated until the learner gets it right. This setup is called supervised learning, because for a given input there is only one correct answer.”

Today AI is making strides toward unsupervised learning—which, maybe, should make us pause and give thanks. By contrast, we don’t have to try so hard. Most of us really don’t have to try at all. Sure, if you feel the urge to encourage language development in your little one, Professor Frank says good old-fashioned serve and return is the way to go. Keep having the kind of to-and-fro conversation with your child that meanders this way and that; follow your child’s interests and share what interests you. That’s the best thing. But don’t feel too much pressure to create a little linguistic genius. Even unsupervised, your child pretty much already is one.
Visiting Scholar Manuel Bohn Presents “Beyond What Is Said: Pragmatic Inference in Young Children”

By Mischa Rosenberg, Teacher

At my snack table last summer, a child on the cusp of 3 years old, newly arrived from China, sat across from me. She was in the early stages of English language acquisition, and her communication at school was largely nonverbal, rooted in gestures. This child was particularly determined to overcome our spoken language barriers. That afternoon, after fruit and cheese had been distributed, she looked me square in the eyes and pointed to an empty spot on the table. I struggled to infer the meaning of her gesture. “Milk?” I held up the carton. She shook her head emphatically. “Apple?” I offered her the plate of slices. Another no. She grew more frustrated and I grew more flummoxed until I finally deciphered her intention. She was pointing to a spot on the table where I had previously placed a plate of graham crackers. Though the crackers were still on the snack tray, she recalled their presence on a plate of their own from earlier. I picked up the graham crackers. She gave me an exaggerated nod. As the summer session continued, she rapidly acquired English vocabulary and grammar, and I, to a much lesser extent, learned to recognize snack-time-specific words in Chinese. Our nonverbal communication became more fluid as well. And I did not again forget to place extra graham crackers on the table.

I remembered this anecdote last fall when psychologist Manuel Bohn gave a research presentation to Bing staff about how infants and young children use gestures, such as pointing, in social contexts. Such nonverbal signals can have a complex meaning that is specific to the relationship between the speaker and listener, said Bohn, who at the time was a Marie Skodowska-Curie Fellow at the Stanford Department of Psychology and has conducted some of his research at Bing.

What does pointing indicate in a conversation? What does “she” or “it” refer to in a sentence? Determining this requires going beyond what is said. The listener must make an inference about what the speaker means. The words and gestures as well as the particular social context provide clues to that meaning. For example, if a speaker points at a bicycle and says, “It belongs to Bob,” the listener must understand that “it” refers to the bicycle. If the speaker nods toward a chair where a woman was recently sitting and says, “she has a red bicycle,” the listener must infer that the speaker means that the woman—“she”—has a red bicycle. The chair does not. In the case of the child at my snack table, pointing referred to the absent plate of graham crackers. Importantly, it only did so because we both knew (and knew that we both knew) that the plate had crackers on it before. Psychologists refer to this shared knowledge as common ground.

As Bohn explains it, “In general, common ground could be defined as the part of the social context that is relevant given the ongoing communicative interaction. To figure out what is relevant requires some reasoning about what the other person has experienced and/or knows.” In order to communicate effectively, a speaker must share common ground with a listener.

In a previous study, Bohn and his colleagues examined how 12-month-old infants used pointing to communicate about absent objects, potentially using common ground. In one experimental condition, a researcher showed an infant two plates containing different objects—perhaps one plate held balls and the other held blocks. For the infant, the balls tended to be the “highly desired objects,” whereas the blocks were less desirable. The researcher handed a ball to the infant whenever the infant pointed to the plate while the plate was empty. The researcher then briefly left the room. Upon the researcher’s return, if the infant again pointed toward the empty plate, the researcher left and returned with more balls. The infant’s pointing may have indicated a shared understanding that the empty plate used to hold balls. The infant displayed a rudimentary understanding of common ground.

In a second trial, after the researcher left the room, a new researcher entered who had not seen the contents of the plates. Would the infant continue pointing to the empty plate to request balls? Results showed that more infants pointed to the empty plate when the familiar researcher was in the room than when the new researcher was there instead. This suggests that infants are indeed considering shared experience in their encounters and rely on some form of common ground for communication.

In his research at Bing, Bohn examined how 3- to 4-year-olds and 4- to 5-year-olds integrated sources of information to determine a speaker’s intent. In one experimental condition, a picture showed a cartoon dog standing between two tables. The table to the dog’s right held an unfamiliar purple object composed of six small balls. The table to the dog’s left contained the same purple object as well as a pink, vaguely papaya-shaped object. The dog turned toward the table holding both objects, pointed, and said, “dax.” Children inferred at this time that the dog “is trying to tell me something.” If
the dog had been referring to the purple object as the “dax,” it would not make sense for her to point to the table with both objects when she could have simply pointed to the table that had only the purple object. A statistically significant number of both 3- to 4-year-olds and 4- to 5-year-olds were able to correctly infer that the “dax” was the pink object.

In the next experimental condition, children were prompted to think about a speaker’s preferences and how this may establish common ground. Children in the study viewed a picture of a cartoon monkey. The monkey, like the dog, stood between two tables. One table held a yellow hexagon and the second table held an orange oval. Then the monkey pointed to an object—in this case, the orange oval—and said, “Oh, I like that!” Now, the child and the monkey shared knowledge—and common ground—about the monkey’s preference. When the monkey later asked for the “dax,” the child could use this knowledge to infer that the monkey was talking about the orange oval, because this was the one that he liked. On the other hand, what happened when a new character (a cartoon sheep) appeared on the screen and asked for the “dax”? In this case, if children understood that what they learned about the monkey’s preference was not relevant for the sheep, they should have no clue which shape the sheep was asking for.

Bohn has found that 3-year-olds begin to distinguish between what they experienced with the monkey and what they experienced with the sheep, and most 4-year-olds can make this distinction.

This study with preschool-age children builds upon Bohn’s earlier research with 12-month-old infants interacting with the known and new researcher. But whereas the infants seem to have a rudimentary sense of common ground, the children in the study were building a more sophisticated understanding.

Through examining how children make inferences based on ambiguous information, we can learn more about how a burgeoning sense of common ground is tied to successful communication, even if it is simply to request graham crackers from a befuddled teacher.

Scholar Bria Long on “Drawing as a Window into the Development of Object Representations”

By Kelli Agnich, Teacher

Using a pen or pencil and a piece of paper, draw a phone, a rabbit and a train.

By the time we’re adults, we can easily think of what an object looks like and produce a drawing of it. We know that trains are large and have wheels used for transportation, while flowers have a stem and an array of petals. But we aren’t born with the knowledge of what different categories look like. Instead, we must learn which combination of features is associated with each category.

How do we go from knowing nothing about the world to the point at which we simply look around and effortlessly recognize the objects around us? As children develop and learn about the world around them, their growing knowledge likely influences their representation of objects. And this knowledge might be reflected in their drawings: 20 years ago, children’s drawings of a banana and a phone might have been similarly shaped; however, in 2019, illustrations of phones less frequently include a spiral cord or a handset.

Bria Long, a postdoctoral fellow in the Stanford Language and Cognition Lab, presented her research on the development of drawing behaviors in children to the Bing staff on our staff development day last October. She has been collecting drawings of common objects made by students at Bing over this school year in order to study how children learn to draw object categories, and how this is related to what they are learning about these categories.

In previous work, Long collected drawings at a local children’s museum and found a dramatic shift occurs in a child’s
ability to produce recognizable drawings between the ages of 4 and 9. To quantify how recognizable children’s drawings are, Long presented these drawings to adults and asked, “What does this look like?” Each adult selected from a predetermined list of objects and Long examined the proportion of adults who recognized a drawing against the age of the child who drew the object. Quite interestingly, the data showed that drawing recognizability plateaued around 6 to 7 years old; however, even very young children’s drawings still contain a rich amount of information, once the observer knows what the child was attempting to draw.

For instance, a child’s crescent-shaped drawing might easily be mistaken for a moon—but in fact resembles the banana they were trying to draw.

In an attempt to explain these age-related changes in recognizability, Long examined how the recognizability of children’s drawings is related to children’s age as well as to several other factors: the number of strokes used, the amount of ink used and the time children spent drawing. She found that irrespective of these additional factors, older children’s drawings are, in fact, more recognizable. Long then used deep-neural networks (trained to recognize objects in photographs) to assess the visual similarity between drawings of different categories. This method captures visual similarity relationships between categories: For example, while younger children’s drawings of a train, bus and car might not be recognizable as such, they still share characteristic visual features (e.g., circles designating wheels) that are picked up by this method. Using this technique, Long can then ask how the visual similarity between drawings of objects changes across development. Overall, Long has found that as children get older, their drawings better capture the relevant visual distinctions between categories: They start to include the relevant visual features that distinguish, for example, trains from cars or rabbits from dogs. And one possibility is that this might reflect their increasing knowledge about these different categories.

Using the data from Bing children’s drawings over this year and next, Long will be able to analyze the process by which children begin to draw different object categories. In particular, these studies at Bing present a unique opportunity to track how individual children’s drawings change over development—as many children have a particular way in which they draw certain objects. By characterizing the variation and consistency in children’s drawings of object categories, Long hopes to gain insight into children’s evolving knowledge of the world around them.

Scholar Yang Wu on “Emotion as Information: Inferring the Causes of Others’ Expressions of Emotion”

By Tayna Gonzalez-Rivera, Teacher

Adults infer and learn so much from others’ emotional expressions. If we see someone looking at a screen with a terrified look, we can infer that this person might be watching a scary movie or show. If we see a picture of people gathered around a TV watching excitedly or nervously, we can infer they could be watching a sports event. Are infants and children capable of these kinds of inferences? Can infants and children use observed emotional expressions as ways to deduce information about the world? These are the questions postdoctoral scholar Yang Wu posed in her talk at this spring’s staff development day. Wu works alongside Professor Michael Frank in Stanford’s Language and Cognition Lab and Assistant Professor Hyowon Gweon at Stanford’s Social Cognition Lab, and she is interested in how we observe emotional cues to gain information about the world, and specifically how and to what extent children and infants can do this as well.

Wu spoke about her work, which focuses on external causes of people’s
emotional responses, citing these external causes as “reliable predictors of particular emotional responses.” To illustrate this, Wu showed pictures of moldy food, a broken bridge, fireworks, a peaceful landscape and a cute baby. These pictures corresponded with feelings of disgust, fear, excitement, awe and affection. With this principle in mind, Wu’s first study investigated whether children map emotional expressions onto their external causes. To do so, Wu selected simple and easily identifiable external causes that would generate distinct, positive emotional vocalizations. She presented these images and their corresponding vocalizations. The image categories were: silly faces (which corresponded to laughs), cute babies (which corresponded to “awws”), slices of cake (which corresponded to “mmms”), light-up toys (which corresponded to “oos”) and crying babies (which corresponded to “oooh”). The study was conducted with 2- to 4-year-olds who were presented with two images from the categories above, e.g., a silly face and a light-up toy, at random. The researchers introduced the children to a doll named Sally, and explained to them that Sally makes a sound when she’s looking at a picture. They then asked the children to identify what image Sally was looking at, based on the sound she emitted. For example, if Sally says “mmmm,” is she looking at a cute baby or a piece of cake? The study found that 2- to 4-year-olds all performed accurately in pairing emotional vocalizations to their external causes, and 4-year-olds reached adult-level performance in all categories.

This encouraged Wu and her researchers to look at even younger children. This study aimed to determine if 12- to 17-month-old infants could match emotional vocalizations to their external causes, and the task was entirely nonverbal. Each child was shown two pictures on a screen while a vocalization matching one of the images was played for four seconds, followed by three seconds of silence. Each sound was repeated twice. Wu was interested in knowing if the infants would shift their gaze to the picture that matched the vocalization. The study showed that this was the case, and concluded that infants between 12 and 17 months old can distinguish at least five kinds of positive emotional vocalizations and can connect them to their probable causes.

Wu’s next study delved even deeper. She asked the question: “Can infants use this fine-grained understanding of emotions to guide their exploration of the world?” Before the session, a researcher placed an item inside a box: an orange or a toy puppy. During the session, a child did not know what was inside the box but watched the researcher look in the box and make a vocalization, such as “aww.” The box was then handed to the infant. Wu predicted that if the infant found an orange, he or she might keep searching, since the “aww” sound indicated something adorable. By comparison, if the child found a toy puppy in the box, he or she would probably not keep searching. The study found that, indeed, infants searched longer when what they found failed to match the vocalization than they did when the item matched. Through these studies, Wu established that 12- to 17-month-old infants can only distinguish five positive emotional vocalizations and connect them to their probable cause, they can also use this fine-grained understanding to guide their exploration of hidden causes of emotional expressions, and that these abilities are early-emerging and sophisticated.

Wu then talked about a study she’s conducting at Bing, exploring the role of surprise in learning. Wu wanted to answer whether or not children can use others’ expressions of surprise to gather information. In this study, a researcher presented 3- and 4-year-old children with a novel toy. The researcher acted as though she did not know how the toy worked. The researcher then played with the toy in front of the child and discovered a function that the child then tried out. This established common ground between them: They both knew something about the toy and its function. Then a second researcher, who never played with the toy, came in the room. In one condition, the first researcher continued to play with the toy behind an occluder and expressed a big surprise; the child could see her expression but not the toy. The researcher then gave the child the toy to play with while she took up some paperwork with the second researcher in the corner of the room. In the second condition, everything was identical except that the second researcher, rather than the first researcher, played with the toy behind the occluder and expressed surprise.

Wu predicted that children would be more persistent in searching for a novel function of the toy in the first condition than in the second condition. Wu stated that in the first condition, the researcher had common ground with the child, and her surprise could indicate the discovery of a novel function. In the second condition, by contrast, the second researcher did not have common ground with the child, and her surprise might either indicate the discovery of a novel function or the discovery of the same function that the child already knew about. The study did, in fact, show that children were more persistent in searching for a novel function in the first condition. Wu highlighted how this study shows that preschoolers consider not only pedagogical and verbal cues, but also others’ expressions, and they use them to guide their learning of the world.

The findings of Wu’s studies show us that children, starting at a very young age, have a sophisticated ability to read others’ emotional expressions, and that they gather information through this process. To finalize her talk, Wu reminded us that we are constantly and consistently emoting and expressing around children, so we have the responsibility not only to mind what we say and how we act, but also how we emote in front of children. 🌈

That’s a turtle.
By Mila D.,
4 years 2 months
Sophie Bridgers, a beloved Stanford researcher known to Bing Nursery School children as “game room teacher,” worked and interacted with 2-year-olds at Bing for the past three years. She often sat at the playdough table in the Twos room, smiling warmly, attentively narrating what children were doing and offering tools, all the while taking in their verbal and non-verbal cues. Her exceptional skills in connecting with young children made her a welcome presence in the classroom.

Born and raised in Berkeley, California, Bridgers’ first passion was ballet, but she was unable to pursue a career in dance due to injuries in adolescence. She majored in cognitive science at the University of California, Berkeley, and found a new passion in research. After graduation, she stayed at UC-Berkeley as the lab manager for psychology professor Alison Gopnik, who studies cognitive development in young children. This allowed her to develop her research skills and to figure out what she wanted to study in graduate school. In September 2014, Bridgers moved across the Bay to Stanford to start a PhD program in psychology under the mentorship of Hyo-won Gweon. It was Gweon’s first year as a professor, and Bridgers says it was exciting to be one of her first students. Together with a fellow graduate student and a lab manager, they built what is now the Social Learning Lab.

Bridgers shared her research projects in the interview below.

What is the topic of your studies?

Broadly, our lab focuses on children’s social learning—how we are able to learn from other people’s words and actions. Humans are incredibly sophisticated social learners, but we wouldn’t be nearly as successful if we weren’t also sophisticated social teachers. We are able not only to learn from others, but we are also able to effectively communicate with, teach and help others. I am fascinated with how this ability develops. Young children are often thought of as learners than as teachers, but as early as they are able to communicate with others, they are eager to share what they know and help. I study how children figure out how to help other people and what to teach them.

Tell us about the studies you’ve conducted at Bing.

Over the past three years, I have run two studies at Bing, and over 200 children have participated. In the first study, we explored 2- and 3-year-olds’ abilities to figure out why someone is failing to achieve a goal and to provide help that addresses the cause of failure. In the experiment, we use a box-shaped toy that plays music and observe how the children react when another person runs into trouble playing with the toy—either because it’s broken or it’s being used incorrectly. We find that children this age can recruit what they’ve just learned about how the toys work to diagnose another person’s problem and problem-solve on that person’s behalf. For example, in cases in which the toy is broken, children will provide a new, functional toy. And when the person is trying to activate a toy, but doing so in an incorrect manner, children are less likely to get a new toy, but will instead show the person how to use the toy correctly. Many children also spontaneously produce behaviors that we might consider teaching. For instance, they point to the toy or the side of the toy that works and provide information (saying, “that toy’s not working,” or “try the other side”), suggesting that children are not just giving this person what they want (music), but are also sharing what they know to help this person learn about the toys.

In the second study, we found that children (3-year-olds) can use their observations about another person’s physical constraints (for example, the person’s hands are too big to reach inside one box) to figure out what the person likely struggled with and help them with that task. Though young children are often thought of as learners, we see that from a young age they can also teach and help others effectively. These spontaneous teaching-like behaviors surprised us.

What got you interested in children’s helping and teaching behaviors?

So much of what humans do is making decisions with other people in mind. This means that much of our time is spent thinking about how to coordinate our minds and bodies to achieve joint goals and tasks. Of course, we can also use this social reasoning to support effective conflict and competition. I became really fascinated with how we break into the social world and begin to forge social partnerships and build community. I see helping as a basic unit of cooperation, and I was curious how children recruit their knowledge and skills to take actions that affect other people. I think
a better understanding of how children engage in social interaction will give us better insight into how successful social coordination emerges, and what the basic social-cognitive mechanisms are that support human cooperation.

What was your experience conducting studies at Bing like?

Conducting research at Bing has been an absolute pleasure and an incredible learning experience. I really appreciate the time administrators take to sit down and help researchers think about their studies, and how to make them more engaging or appropriate for preschoolers. The teachers are also so welcoming and supportive. When conducting studies at other schools, I have always felt supported, but I also felt like a visitor. At Bing, I feel that I am part of the community: The teachers treat me like I am one of them, but with a slightly different role—I’m a game room teacher! This integration helps the children feel comfortable and excited about playing research games. I have also learned so much from spending time in the classroom and watching the teachers comfort children, engage them and mediate conflict. I think all developmentalists should spend time in classrooms, and Bing’s classrooms are a really magical and special place to spend this time.

What’s your next step?

This fall I moved to Cambridge, Massachusetts, to join my fiancé, who was a graduate student at Stanford in psychology and now is a postdoctoral researcher at MIT. I’ll wrap up my PhD remotely, defend sometime between December and March, and then transition into a postdoctoral position myself at MIT and Harvard. I’m very sad to leave Stanford and Bing, but I’m excited to continue conducting research with young children in a new environment.

Anything else you’d like to share?

One of the greatest pleasures of working at Bing is that you get to see children grow up a little bit. I started at Bing in the Twos classrooms in fall 2016, and so I could see how children developed as they reached age 5. When they were 2, they were initially reserved about coming to the game room. It was exciting to see them shift, even just that year, from not making eye contact with me initially to running up to me and asking if it was their turn to go play a game. But it was also so much fun playing games with them when they were older: They acted like game room pros, they knew where all the rooms were and had played many different kinds of games. It’s also a magical experience to carry on full, rich conversations with them—while remembering that just two years earlier they were still learning how to communicate, let alone hold a conversation about their day, birthday parties and dreams. Parents and teachers have front-row seats to watching development happen, but ironically, as researchers, even though we study development, we rarely get to observe it unfold. Spending time at Bing has given me an opportunity to experience development in action. I’ve learned a lot, but it also has just been a remarkable joy to experience.

CLASSROOM CURRICULUM

From Caterpillar to Butterfly: Observing Metamorphosis in the Twos

By Mary Munday, Head Teacher

As children entered the Tuesday/Thursday AM Twos classroom this spring, they quickly discovered several jars with tiny caterpillars inside. The teachers had set up the jars at the children’s eye level and provided magnifying glasses and books about the lives of caterpillars. The setup succeeded in captivating the children, and over the season, they watched the metamorphosis of caterpillars into butterflies.

I see caterpillars in there! I saw them turn into butterflies. No chrysalis in there. —Zoe

It’s like a snake! And they open (opening her hands as she described this). —Kiera

They are moving. —Esme

You can see them bigger with this (magnifying glass). —Cleo

Each day, the children noticed the caterpillars were getting bigger.

This one is growing! There’s a big one! —Charlie

It grows bigger and bigger and bigger and bigger! —Cleo

I saw the bigger caterpillars! —Zoe

The children immediately became interested in using the magnifying glasses to get a closer view, and in learning more about caterpillars through read-
ing books with the teachers. Some children were familiar with the metamorphosis process, while others were learning along the way. Each day, the caterpillars had grown bigger, and soon they began to form chrysalids.

That's a chrysalis! —Zoe
Then it gets into a butterfly, right? —Orson, right? —Cleo
Yeah, um, yeah it has to stay in there first. —Orson

The chrysalids were transferred to a large net enclosure to continue the process. The teachers posed questions like, “How long will they be in their chrysalis?”

Oh, waaaaay long! Maybe really long! —Luca
Five days or infinity! No, I think 79. —Nicholas
Oh, maybe they are squirting out, then they can find a new home. —Orson

To the children’s surprise, the following week there were butterflies!

Many caterpillars have turned into butterflies! —Orson
There's a butterfly in there! Two butterflies. Yay! He’s flying! —Ayla
I saw a butterfly! —Ti
He can fly! —Gabriel
It got its wings! —Rebecca

The children carefully watched the butterflies get stronger until it was time to release them. The entire class was eager to take the butterfly net outside to the garden. Carefully, a teacher reached in and a butterfly climbed onto her finger.

She slowly pulled her hand out and raised it up as the children watched. The butterfly paused and then flew off.

Fly fast! —Vivienne
Very high. —Gracie
Fly fast! —Orson
Bye butterfly! —group waving goodbye

All the children waved goodbye to the butterfly and then began exploring the outdoor environment. To our surprise, there was a large butterfly nearby on a fencepost. Children squatted down to see the butterfly up close.

Maybe it just came out of the chrysalis. Let’s go find more! Let’s find more! —Ti
It’s a yellow and black butterfly! —Charlie
Butterflies have small heads. Maybe it’s going to fly away. This butterfly was born in Europe. —Orson
I saw a butterfly pass me over there! —Darius
This butterfly is camouflage. —Luca
Bigger (comparing to butterfly we released). —Vivienne
Maybe it’s testing how it flies, but don’t get too close to it. —Orson

This led to more explorations and discoveries throughout the environment. The children enthusiastically discovered ladybugs, ants, spiders, crane flies, pill bugs and many more insects and spiders.

The children’s curiosity about all things bug-related was apparent from their questions and interest in leafing through books about bugs. The interest expanded as they looked for more insects inside and outside the classroom, noticing the differences and classifying these differences, such as bugs that could fly and spiders and pill bugs that could only crawl.

Two children found a crane fly low on a wall in the classroom. They quickly reached for a magnifying glass:

Oh my gosh! It has a sharp tail so don’t touch it! Oh my gosh. Let’s go look for more bugs! —Cleo
Yeah! Let’s go! —Ayla

Reflecting back on this period, we realized we had seen a big increase in the children’s language development. Children were verbalizing their observations and prior knowledge, asking questions and sharing ideas with each other, often inviting each other to go on bug hunts. Peer relationships formed as they teamed up, enthusiastically gathering their supplies, including magnifying glasses and bug jars. Children showed great care when finding bugs, making sure to create a safe space for the tiny creatures, and they cautioned peers not to get too close. They talked about how they could care for the butterflies, how setting them free would give them a chance to find a new home or find their family. Throughout this project, children showed the beginnings of an understanding of empathy, worked together on a shared interest, and had a first look at the process of metamorphosis.

A BUTTERFLY BOOK LIST
Caterpillar to Butterfly by Melissa Stewart
From Caterpillar to Butterfly by Deborah Heiligman
National Geographic Readers: Caterpillar to Butterfly by Laura Marsh
The Very Hungry Caterpillar by Eric Carle
Ten Little Caterpillars by Bill Martin Jr.
Waiting for Wings by Lois Ehlert
The Caterpillar and the Polliwog by Jack Kent
I’m making a hospital for my dad. I’m putting the roof on. This is the elevator!” said one child. “I’m making a big airport. It’s going back to San Carlos,” said another. With much animation and pride, children playing with blocks excitedly shared what they were building with their peers.

Scenarios like these were quite typical in our Tuesday/Thursday PM Twos program. The children’s enthusiasm to build was highly contagious. When they saw their peers carrying, arranging or stacking blocks, they would immediately be inspired to build as well. Initially, children would build independently, but as the weeks progressed they began offering blocks to one another and building collaboratively. A community of builders soon evolved, and building became a universal language. Children who were learning English as a second language shared experiences with their peers by creating structures together. At first, the children’s structures had simple designs, but in later weeks they became more complex. The materials the children used extended from unit blocks to large hollow blocks, magnetic tiles, magnetic blocks and pieces of wood that they glued together.

The children’s fascination with building grew out of their desire to construct with blocks. With repeated experiences, this open-ended, three-dimensional material provided endless opportunities to practice working cooperatively and to problem-solve, thereby promoting social and cognitive development in the children—for example, comprehension of spatial relationships, mathematical ideas and language.

The teachers displayed photos and descriptions of children’s work in class. Interestingly, children from another Twos class were inspired to go to the block area to build when they saw the photos. Building is truly a universal language that all children can relate to!

### Unit Blocks
Every session the same child came over to the block area to build a hospital, and the teacher would assist by offering him blocks. After a few weeks, other children handed over blocks and helped him build the hospital.

### Hollow Blocks
As the interest in building grew, the teachers highlighted the large hollow blocks on the patio. A child repeatedly visited the hollow blocks and carefully stacked them to build a tower. Once the structure was taller than she was, she would find or make a platform to stand on so she could continue stacking. As soon as she started to build, other children came to help her.

### Magnetic Blocks
A child intently explored the properties of these magnetic blocks. As he learned how to connect the pieces together, he shared: “These are the train cars, and this is the steam engine.”

### Magnetic Tiles
Through repeated experiences working with the magnetic tiles, children became more competent in constructing stronger and taller structures.

### Wood Gluing
As children’s interest in building increased, teachers gave them more opportunities to build. Here a child constructs with pieces of wood and glue.
“We’re going on a trip!”
“Let’s go on a boat.”

These were some of the recurring play scenarios in the Monday/ Wednesday PM Twos class this winter quarter. As children become comfortable in a familiar play environment, they start to use more verbal communication, build social skills as they form relationships with peers and use the materials around them to enhance their play. It was satisfying to see these skills emerging as elaborate and sustained dramatic play unfolded.

Travel-themed play took off after teachers added purses to the dramatic play area. The purses, which were intentionally small in size, allowed children to transport other small props, like play cameras and keys, with ease. Every session a core group of children came in, waited for their peers to arrive, went straight for the purses, filled them up with play phones, and chose a stuffed animal or a doll before moving on as a group through the classroom and yard. The teachers saw them organize their materials: “This is your bag and this one is mine,” and “I like the sparkly one.” Once items were gathered, they invited one another into the play, saying “Come with me” or “Let’s go.” The children would then verbalize their play schemes: “We are going to the airport!” or “We are going on a bear hunt,” or “We are going on a cruise.”

These play schemes would often take the children to various areas of the yard and classroom, depending on the play—airport play with large hollow blocks on the patio, bear hunts exploring in the bushes and trees and on the grass. As this pretend play repeated each session, children who initially just observed became familiar with the game’s rules and routines and joined their peers by gathering the materials needed and following the group. In the early stages, the dramatic play was fast-paced, full of movements with rapid changes in play schemes. Repeated experiences with the same play, materials and peers helped them to sustain and extend play. The social group continued to get larger as the weeks went by. Here is a sample of their play:

Child 1: I am on an airplane. But it does not have wings.
Child 2: (Talking over the phone)
   Hi, Mommy. I am coming soon.
   Child 1: I am wearing a blue dress. It is not like your [s].
Child 2: I am wearing pink
Child 3: Mine is pink too.
Child 4: Are we there yet?
Child 5: I am going on an airplane. You can drive it (pointing to Child 5).
Child 1: I am going to my mom’s house.
Child 5: Going to farmer’s market.
Child 1: We need a wing.
Child 3: Let me fix the wing.

As the group became more cohesive, individual children began to take on specific roles. Some tended to generate ideas about what the group would be doing, like catching a flight at the airport so they could go on vacation. Some took on a parental-type role by keeping members of the group together and saying things like, “Come on everyone! Time to get on the plane. Bring the babies. We can’t be late.” Still other children became responsible for solving problems and finding the materials needed to continue and extend the game, such as pretend fruit to use for snacks for hungry travelers or more hollow blocks to serve as seats on the plane for additional passengers.

“This travel-themed play helped the children hone the abilities they will need in order to participate in socio-dramatic play in the larger, mixed-age nursery classrooms. As they learn how to share, negotiate, take turns with materials, solve problems and include others, they are forming the foundation for the skills they will use in social interactions throughout their lives.” —Elinor Fitch Griffin, Island of Childhood: Education in the Special World of Nursery School
Finding Empathy in a Community of Two-Year-Olds
By Peckie Peters, Head Teacher

I can’t find my Mommy!” announced a child loudly, causing several children in the Twos classroom to pause. In the beginning of the school year, 2-year-olds often like to carry around a photo of their family as they explore different areas of the classroom. The photo helps children feel connected to their families when they are apart and often supports the process of separation. One day this fall, this child couldn’t find her picture and she was a little teary, her face visibly frustrated. Another child noticed and asked why she was sad. I explained that she had taken her picture outside and now couldn’t find it, so we were trying to find it to help her feel better. Minutes later, a child came in from outside, picture in hand, and gave it to his sad classmate, grinning as he saw her smile. There was no exchange of words, but it was clear that he was happy to help her solve the problem.

Empathy in 2-year-olds? Does that really exist? The answer is yes and was represented again and again in our Twos class this year. Empathy is described as being able to take another’s perspective in order to know how that person feels, and then acting with compassion in response to that understanding. It is an important component of social and emotional development and is a skill that children learn through practice and exposure to kind, supportive adults who model it. The following scenarios describe examples of this skill and its evolution.

A child picks up a doll and gently wraps her in a polka-dotted blanket. She cradles the baby in her arms, watching her face carefully as she sits down in a chair at the playdough table. I’m nearby and comment that she is an attentive mother making sure her baby is warm and comfortable. The child smiles. Another child finishes playing with her doll and tosses her to the ground. I quickly pick up the baby and say, “Oh my goodness, are you OK?” I tuck the baby under a blanket, rocking the bed gently for a minute, then say to the group, “We need to be careful with babies, don’t we?” In both scenarios, I reinforce kind and empathetic treatment of babies, but am in no way punitive to the child who is still learning this skill.

Piggie and Doggie are active members of the classroom community. The Twos classroom offers multiple-sized stuffed animals from dogs to otters to bears. An enormous basket of puppets is also accessible to children. Each day in our class the animals joined children on a variety of pretend adventures—riding in carts, as a passenger on the train, on an airplane to Phoenix. Children’s attention to their stuffed friends is focused. Dog needs a spot on the train where he can see. Pig doesn’t like to go too fast in the cart. Bat sometimes gets hungry and needs to have a snack. Children have been on the receiving end of this kind of attention from parents and other caring adults, and they are able to acknowledge and respond to the imaginary emotional and physical needs of their animal friends because of this model. They may not demonstrate this empathic behavior all of the time—because this area of their prefrontal cortices, the part of the brain responsible for this sort of thinking, is still developing—but this kind of practice helps them to solidify these skills.

This February, a child’s parents joined the class one day to share some ideas about meditation, understanding one’s own feelings, and using breathing as a technique for calming one’s body and emotions. While the topic seemed complex, the presentation was geared to the needs and cognitive level of 2- and 3-year-olds. The children were attentive, but it wasn’t clear to teachers if they truly understood the concepts presented.

The following week, a child was playing at the water table when a classmate surprised her by coming up behind her with a plastic leopard. Running to the playhouse for safety, the child sobbed loudly and vocally. I came to help her and was followed by a concerned group of children who wanted to check on their peer. In the front of the group was the classmate who surprised the child, his face a mixture of confusion and worry. “I want my Mommy!” wailed the girl as she snuggled into my lap. “That really scared you,” I comforted. “It’s nice that all of your friends came to make sure you are okay.” She looked up but continued to sob.

The classmate who surprised her left the group, returning with a small leopard, which he offered to her. The boy rea-
soned that if he were upset, a friend offering an animal would provide him some comfort, and he wanted to do that for his friend. I explained to the girl that the classmate wants to help her feel better. “I think he was surprised that scared you.” The girl didn’t respond but her breathing took on a rhythmic cadence as she breathed in and out, in and out. I said to the boy, “I think she might be doing that breathing that you and Mom and Dad taught us.” The girl breathed in deeply and exhaled, then did it again. Afterwards, she stood up and announced, “I’m OK now,” and moved to the door of the playhouse. Before leaving, she turned to me and said, “I love you.”

In this scenario, children were demonstrating their concern by coming to support the child who was upset. I helped them to understand how she was feeling and why, and acknowledged the importance of their presence. The classmate made an authentic offer of empathy when he brought the girl something to help her feel better.

Clearly, this group is well on their way to developing empathic skills. Becoming more aware of how others are feeling is a critical factor, and children learn this information through practice and modeling. Labeling and validating children’s feelings supports them in this process, particularly when communicated in a kind and nonjudgmental way. Time to practice empathy and learn from our mistakes is essential. As adults, we are important models, and children will look to us to see how we express empathy in our interactions. If this 2-year-old group is any indication, we have good reason to be hopeful that empathy is alive and well.

Every day in the classroom, teachers encounter an endless supply of teachable moments, those small moments in time when we notice something about a child’s play that is interesting, informative or pleasurable. Often, teachers stop to ponder the child’s play. Other times, they pause to ask the child an open-ended question to gain more insight into what the child is thinking or feeling. Some researchers have found that stopping to notice what might be considered the small events in a child’s day can help teachers better support learning. Their thinking is that by noticing these events you can get authentic information about what drives, engages and interests the child. These moments are critical, and this process of noticing is an integral part of the teacher’s day. Taking note of them allows us to “go deeper” with children, finding connections with them through moments that they find interesting.

Other times, though, teachers need to hold themselves back from inserting themselves, as we know their presence alone can shift children’s play—engaging children in conversation can bring play to a standstill. It is a tightrope that teachers walk every day, finding the balance between times to dig deeper and times to just enjoy the moment. Consider the following descriptions of moments in Center PM as you ponder: Should the teacher have done more? If yes, why? If no, what do you find pleasurable about the moment, and what insight does it give you about the children? As teachers do every day, enjoy the process…

Abraham is in the grove at the bubble-making station. He has a large open wand that allows him to make quite large bubbles. He dips this short-handled wand into the bubble liquid and quickly moves his arm from left to right. The bubble emerges but quickly pops. He dips the wand again and repeats the process with the same result. The next time he slows his movement and watches as the bubble hovers in the air for a second. Finally, he dips again and moves deliberately, carefully and slowly as the bubble emerges in its full form, floating up to the pine tree before popping. He watches its path carefully, seeming to think about it. He then repeats the process nine more times, each time angling the wand in slightly different directions as he watches the bubble’s course. He pauses, wand in hand, then sets down the wand and moves up to the garden. The experience gives us insight into Abraham’s capacity to be reflective, his ability to sustain interest when something is challenging or not working, his willingness to adapt his behavior based on what he observes and even a bit about his gross motor development. All of this information matters, but so does the moment.

Ethan and Jonah have taken off their shoes and are swinging from the upside-down U-shaped bar located in the grove in Center Room. The bar is tucked in
the corner of the yard under a grove of trees, offering a sense of privacy. From the bunny hutch nearby one can see the two boys grab the bar and swing their legs forward, kicking their feet up in the air and letting them drop back to the mat. They both laugh and do it again, this time letting their bodies collapse on the mat, Ethan landing on top of the smaller Jonah. They continue to giggle as they wrestle and squirm, legs kicking and arms flailing. “OK, stop,” yells Jonah, and Ethan goes in, followed by a few quick misses by each boy. I let them know we can finish after snack, just as Elan makes number 18 and passes the ball to Ayan who sinks number 20: Success, and on to snack! This interaction gives us great insight into these boys’ friendship—their ease with, and trust in, each other. It also is an excellent representation of their gross motor capacities: their abilities to move, shoot, rebound, jump, crash. We even get insight into their moral fiber, as they want to get legitimate shots to reach their goal. There is so much in this fleeting moment, yet the boys’ process and their pleasure in meeting their goal was the most phenomenal.

Valentine, known as Lenti, finishes her painting just before snack time. She asks a teacher to help her put it on the drying rack, so the teacher holds it up to her and asks, “What do you think?” “It’s nice,” she replies, admiring her series of dots on the painting. She then goes on: “It’s wolves howling at the moon. The baby wolves are sleeping in their warren. The adult wolves are drinking monster wine.” She chuckles to herself and heads into the bathroom to wash her hands. The teacher turns the painting around and notices that the previously named dots look remarkably like wolves with their noses pointed up. Momentarily, she is struck by Lenti’s use of the word “warren” and her understanding of the distinctions between adults and children, both good pieces of information to know about Lenti. In this case, it is just a warm moment that comes from taking the time to stop and notice, with a bit of information saved for another day.

Every day presents an infinite number of events such as those described. They provide opportunities for reflection and inquiry, and it is important for us to be conscious of the opportunities and use them to deepen our understanding of children. Focusing on ordinary moments encourages us all to slow down and quietly observe when we are invited into the world of the child. In doing so, we are reminded of the joys that children find in just being, and in exploring and experiencing the world around them.
“Curriculum should help children make deeper and fuller understanding of their own experience.”
—Lilian Katz, leading scholar in early childhood education

As the children returned to Bing from their winter break, we received our first big rain showers of the year. At story time, teacher Betsy introduced a weather song in which the words rainy, stormy, windy, snowy and sunny were spelled. Over the week in West AM, as the children learned the song, we saw them get excited as they discovered that all the words in the song ended with the letter ‘Y’ and they began to point out other words they knew that contained the letters in the song.

To see if there was a genuine interest in letters among the children, the teachers provided some printed alphabet letters on little squares of paper at the language table. Children started using the printed letters in the books they created, to invent their own games and to spell out their names. After providing a set-up of the letters “A B C” made out of unit blocks on the carpet, the teachers were surprised to see some children continue the project by working on building the shapes of all the letters of the alphabet out of this material. When another winter storm provided our yard with a wealth of sticks and twigs, the children began to notice that some made letter shapes and realized they could make some themselves: “This one looks like a C.” “I found one that looks like a Y.” “If you turn the stick this way then it looks like the U in my name.” “You can make a V with two sticks and ‘A’ with three.”

To further capitalize on the children's budding interest in letters and other symbols, teachers buried treasures in the sand and drew an X to mark the location. This inspired children to bury their own treasures, and teachers helped them make small signs that had drawings and words to show where to look for the hidden objects, such as toy dinosaurs.

Teachers also introduced a map with symbols that represented familiar things: a large map of the West Room yard with movable depictions of major landmarks from the outdoor space. The children enjoyed trying to accurately portray the landscape by arranging small illustrations of things like the bridge, slide, swings and chicken coop on the map, and periodically went to the classroom door to look out at the yard to check their work. Some children even noticed that some features of the yard were missing, like the small house in the sand, and drew their own representations of these landmarks to be added to the map. This activity encouraged the children's developing awareness of their familiar environment and of spatial relationships.

Another use of maps and symbols arose when the children engaged in dramatic play with ships they built out of large wooden blocks on the stage in the yard. Teachers provided small copies of maps of local areas that the children used to navigate the imaginary seas on which they were sailing. The children also created paper flags to help identify the type of vessel they were sailing and to let other seafarers know whether they were approaching a boat carrying a friendly family on a vacation cruise or a group of pirates hunting for treasure. It seemed from the emerging play in West AM that the children were invested in the study of a variety of symbols and their meanings.

Eager to provide the children with more uses for maps and symbols, the teachers created a game where the children searched for pictures of geometric shapes hidden in the yard. Some children enjoyed simply hunting for the shapes, but many became interested in marking the places where they found each shape on smaller copies of our map of the West Room yard. The game continued the next week when the children were given the map with locations already marked on it, and they used those marks to navigate the yard and find pictures of familiar storybook characters.

Next, we embarked on a study of signs and symbols seen in our day-to-day environment: The teachers created games and songs that involved road signs that children have likely come across while riding in the car or exploring a city on foot. Teachers placed simple signs throughout the classroom and yard that described the area through a picture symbol, such as a library pictogram near the bookshelf and a “people working” symbol in the sand area. The children were also offered a checklist of the...
symbols that were posted, so that they might hunt for them and then record which ones they had located. Reading the symbols on the list and making a mark to delineate which ones they had seen was a highly motivating pre-literacy activity for many in our class.

Younger children were particularly drawn to the pictogram signs, as it helped them realize how pictures could be used instead of (or in addition to) words to convey meaning. They added small copies of these symbols to their block buildings. At the design table, they started to use art materials to create their own signs and stories. One particularly inventive use of these slips of paper involved a child using them as small doors to create a “lift-the-flap” book by drawing small pictures and symbols for the reader to discover under slips of paper that had been taped to cover them. At story time, the teachers used songs such as I Sent a Letter to My Friend and I’m Going to Make a Paper Shape to introduce more letters and symbols, and read books like Anansi the Spider, Last Stop on Market Street, Doug Unplugged and Alphabet Mystery that featured symbols or maps in the story.

The use of letters, numerals and other symbols sprang up in other areas of the classroom as well, such as near the basketball hoop. The children started writing their names or initials and making tally marks or numerals on a clipboard to record the number of successful shots they made at the basketball hoop. It seemed children were making meaningful connections about how symbols help us to communicate and record information.

As parents shared stories of children beginning to recognize signs on the drive to school, we decided to take the children on a field trip down Escondido Road to explore the signs around Bing School. Children were interested to see parking and pedestrian crosswalk signs in our own parking lot. While some were delighted to see the bike lane sign, others found the roundabout sign at the intersection of Escondido Road and Campus Drive the most interesting feature of the trip. However, the most exhilarating part of our walk took place when children discovered a stop sign at their eye level at a crosswalk near Ray’s Café on Escondido Road. It was fun to see them have an opportunity to touch and examine the sign they recognize and see so often at a distance on all their car rides.

Though it is a complex topic to explore with young children, it was rewarding to see how children’s learning can reach new heights as we follow the interest they have in something that is part of their everyday lives.

When we, as teachers, took this type of educational journey with children, we felt we had achieved Lilian Katz’s goal of providing curriculum that helped children “make deeper and fuller understanding of their own experience.”

Walking to see signs around the school.
When Bing Gives You Redwood Branches
By Jess Goodman, Teacher

“The living world is the natural domain of the most restless and paradoxical part of the human spirit. Our sense of wonder grows exponentially.”
—Edward O. Wilson, *Biophilia*

Built on the site of hayfields that supplied Leland Stanford’s horse stables, Bing Nursery School was designed by founder Edith Dowley with conscientious concern for preserving the natural landscape; in fact, she declined some of the initial blueprints, as they looked too much like a school. In California’s climate, she believed that children should be outdoors and experiencing the elements—the nursery should look as if it grew out of the ground. Royston, Hanamoto & Mayes, the San Francisco-based architectural firm that eventually took on the construction of Bing, followed the mid-century aesthetic of merging inside and outside and having a fluidity between formed and natural structures.

Fifty-three years later, as Dowley intended, the rolling hills of East Room beckoned a group of children outside to the sand area. Tony and Zaki started to dig beneath the cluster of redwood trees while Gabe used the hose to fill a tub with water. Something rattled above us in the trees, and then a small branch dropped down with a gentle patter, and then another. Excited by the raining branches, the children declared the base of the redwood trees hazardous and started to barricade the area, first drawing a line in the sand, then moving furniture on top of the line.

Loah shouted for traffic cones and bolted over to the patio to collect them from the shed. I joined in, grabbing caution tape and stretching it across the pre-established line while Hugo secured the tape tightly. Octavia and Milan ran into the classroom, returning with signage to warn of the falling twigs: “Be careful! There are sticks falling from the trees,” “No going past the caution tape,” and “Hey you, you are doomed if you go past the caution tape.” Naturally, a guard system needed to be put into place.

Some children climbed atop the slide, moving the caution tape like a bridge up and down to let guards through. Other guards practiced duck-and-cover drills. Extra equipment like tires, sand tools and chairs were hauled out of the “fall zone.” For nourishment, Ava and Nico prepared soup with leaves, water and sand for the hard-at-work guards. Lucas and Arthur used trowels to smooth the sand so the twigs would have soft landings.

The spontaneity of the falling twigs from the redwood trees was a catalyst for involved play—play prompting collaboration, role play, sharing, safety rehearsal and literacy. A collective adrenaline rush permeated the space. Richard Louv, author of *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*, writes that “[Nature] serves as a blank slate upon which a child draws and reinterprets the culture’s fantasies. Nature inspires creativity in a child by demanding visualization and the full use of the senses.” The falling-redwood-stick play scenario can be dissected to show multiple examples of physical, cognitive and social development for the children involved and their creative repurposing of the sand area. Yet the stimulus for this play is the nursery environment itself: The landscape architecture of Bing attracts children to the vast exterior spaces that serve as a blank slate for children every day.

Dowley’s vision from half a century ago of children learning from the land in a space specifically crafted to cultivate these types of interactions seems almost extinct amid the constant development beyond the school’s boundaries. The Stanford that once had acres of hayfields for hay and horses is now celebrating its campus expansion to Redwood City. Thankfully, Dowley perceived the imperative link between the healthy growth of children and their connection to nature. For both children and teachers, the biophilic design of Bing School serves as refuge and inspiration—you never know when a redwood branch might fall.
Children at Bing are seen as explorers and inventors. They are guided by an inner drive to fulfill a need, follow an interest or meet a challenge. On any given day, a child might choose to seek a sensory experience such as the handling of clay or water, or create an airport or castle with wood blocks, or enter the world of pretend by becoming a dragon or bus driver. In the 2018–19 school year in East PM, many children committed themselves to play that required both strength and determination, as the materials they chose to work with were rubber tires, wood carts and outdoor construction blocks, which included both hollow wood blocks and heavier “out-last” blocks. As teachers observed the physical efforts the children exerted, we began calling this type of play “heavy work.” Here are three examples:

Steering a cart full of your friends on a pathway is heavy work!
*A child pushed a friend in the cart on the paved path while another child guided the cart from the side. As the trio paused on the path, another child climbed in. The child tried to push again, exclaiming: “It’s too heavy! I can’t push two people, I can only push one! Someone has to get out!”*

Pushing a tire across the sand? Heavy work!
*A child tried to push the tire across the sand, announcing, “This is too heavy! I cannot push it!”

Lifting a boulder with a sand shovel? Yep, heavy work.
*A child approached this boulder in the sand with a big shovel, tucked the shovel under the boulder and heaved upward the best he could. “This is too heavy! I need help!”

Why do children engage in this kind of “heavy” play? There are many possible reasons. Certainly, it could be just what a child sees in front of them and chooses to do: A child sees a big boulder in the sand area and decides to try to make it budge using a sand shovel. Often, other factors influence a child to choose heavy work. Maybe children involved in make-believe play must save a cart full of friends from a character who is chasing them. Maybe there is a need to collect items like keyboards and binoculars and transport them to the big boat far out in the yard. Or maybe they’re seeking a feeling of mastery or strength for a child who lifts something bigger or heavier than seems possible. There might be a sense of “I did this!”

What do children gain from this kind of physically challenging play? Children engaging in lifting, carrying, stacking, moving and pushing heavy objects are developing their proprioception, sometimes coined our “sixth sense.” Proprioception is how our body knows what position it is in. It is the sense that enables us to know where the different parts of our body are, how they are moving, and how much strength our muscles need to use. Our muscles, joints and skin all contain sensory receptors that contribute to proprioceptive input. This provides information that is used for motor movements and postural control. Children become more skilled in working with relatively heavy materials as their bodies gain command over how to adjust accordingly: They learn how to bend low when pushing a heavy cart, how to position large blocks in their arms to balance when carrying them across the yard, or how to hold a tire to the side of their body as they drag it from one spot to another.

Interestingly, children in East Room were often inspired to try “heavy work” after seeing another child engage in that kind of play. In the sand area one day, a 4-year-old child decided to heave a tire up the wood deck steps to then roll it down the big slide. After he did that one time, he ran off to play elsewhere. However, a 3-year-old child, who was also in the sand area, had observed him with the tire and decided to take on that same challenge. As the 3-year-old tried to lift
the tire up the deck steps, he got stuck on a step due to the awkward nature of the tire. Immediately, without him asking for help, another 4-year-old child saw he was stuck and came over to assist. He willingly accepted her help, and they both proceeded up the deck steps and successfully rolled the tire down.

By then, another 4-year-old had witnessed the experiment and joined in, also. All three children shared carrying the load of the tire up the steps, then rolled it down. As the tire rolled out of the sand area and onto the grass, a 5-year-old and a third 4-year-old saw the tire and joined in with the three other children. Now five children were engaged in this heavy work of carrying the tire up the deck to then have it roll down! This was all due to one boy, who had tried something new and caught the interest of peers nearby.

Teachers were excited by the changes they observed over many months in how the children did “heavy work.” In the early stages, their goal seemed to be to move objects for the sake of moving them. However, over time children established complex games that included heavy work. For example, a foursome of children decided to move the tires into a boat, saying “and now we are sailing away to Hawaii!” Another large group of children repeatedly gathered all the hollow blocks from the patio and carted them to the tree deck in the middle of the yard to create various versions of houses or hideouts.

The freedom for children to be the agents of their own learning is at the core of the experience offered to children daily at Bing. The “heavy work” that developed into a play theme in East Room ended up being not only a physical experience but also a highly social one. Tires, blocks and carts were truly inspirational tools for children to push, carry and lift into their play at Bing.

It Is More Than Just a Book…

By Parul Chandra, Head Teacher

At the start of winter quarter, teachers in Center AM noticed that children who ordinarily didn’t visit the language table were drawn to it and wanted to share their own stories. It became obvious to us that bookmaking and storytelling, which had been exciting to only a few children, had become appealing to the larger group. This curiosity about books and storytelling led to a 15-week book project, with children spending many hours drawing pictures and dictating stories to go with them. Throughout this project, every child became involved and displayed enthusiasm.

Early on in the project, teachers began sharing the children’s original creations at story time to showcase the authors. Sharing the books deepened not only these children’s interest in writing, but also encouraged other children to create stories.

Another part of the project was to first gather an understanding of what children already knew about books. The teachers did this by asking open-ended questions about books and storytelling. Teachers also had discussions about the components of books. Children began to build a “book vocabulary,” including words such as spine, characters, hard cover, dust cover, fiction, nonfiction, illustrator, author and coauthor. Julian said that the dust cover was the “book’s blanket.” Catherine said that every book has a spine, “just like us or the pages will fall.”

Other concepts came up organically during story time as children asked questions and made observations about the book of the week. Some of these concepts included character, author’s page, illustrator, chapters, table of contents and series. Children began using these and other book terms in their shared conversations with other children. We also observed the children’s excitement, apparent in their tone and manner, as they discussed books among themselves. There was a new intensity and level of joy in the classroom as the project progressed. Although children approached the subject of books with
Children began to notice different genres of books beyond simply fiction and nonfiction. Children were interested in atlases, dictionaries, diaries and phone books. They were excited to see the variety of books, and this stimulated many of them to create their own atlases, dictionaries and other types of books. We discussed dictionaries and atlases as reference books and compiled a dictionary for the book project for children to refer to and revisit. Yuki noticed we had created our own classroom book, “because a dictionary is also a book!”

The concept that generated the most interest and debate was the distinction between fiction and nonfiction. As part of play time, children used blocks to build a temporary additional library for sorting out fiction and nonfiction books written by the children that day. After children had written their books, the “librarians” asked their peers if the book was “fake or real,” and then catalogued the book on the appropriate shelf. This play motivated children to write more books to add to the block library and to seek their peers’ input as to whether the book was fiction or nonfiction.

As one example, after sharing his news about his train ride to school, a child declared it was a real story and wanted to file it under nonfiction. Others challenged his thinking by explaining that nonfiction is like “a story about the moon or the sun or the dinosaurs.” To him, the story really happened, so it was real. We saw the value of mixed-age grouping as younger children who were still learning about the difference between nonfiction and fiction received explanations from the older children. Some children modified their existing theories as they observed, listened and shared these ideas.

Children resourcefully found materials in the classroom for bookbinding—for example, paper, napkins, matte board, paper plates, pipe-cleaners, popsicle sticks and pine needles—which became an everyday project for many of them. These variations were creative and rich in quality and design, and we saw children model for each other, offer suggestions, talk about book orientation and binding techniques, and explore the shapes and sizes of a book. We provided materials and brought in books of different sizes and with different covers (e.g., fabric, leather, felt and board) for children to explore. This opened up deeper discussions on genres and how to categorize books.

To further the children’s understanding of books, we took the children to our school library where our librarian, Mischa Rosenberg, answered their questions and talked with them about how to find books in a library, library protocol and the role of a librarian. After Mischa showed the children how to find books in the Bing library and where certain books are located, children selected a few to borrow to read in our classroom. Nick said that the librarian was like a “book doctor.”

As the project continued, we decided to highlight two authors—Leo Lionni and Chris Van Dusen—by bringing in many of their works and sharing short bios of each. As children explored these books, they noticed similarities in the illustrations and storylines. After reading one of Lionni’s books at story time, Ruby remembered from his bio that Lionni had known from a very young age that he wanted to be an artist, and said, “Look, he is an artist because see how

---

**STORMY NIGHT BY MICHAEL D.**

- The power line broke down.
- This is my dad’s phone shining light.
- This is my mom’s phone shining light.
- We were asleep.
- The basketball hoop fell down.
- The lights flashed on when we woke up.
he made the ocean different. See on one page it looks like this and then on this page it looks like this. That is because he is an artist.” This is an example of how children continue to notice details about books, bindings, jackets, book themes, storylines, illustrations and the authors’ interests. Discussions about the authors’ bios sparked teachers to ask the children what they would like their readers to know about them. After every child shared a bit about themselves, this information was incorporated into their own books, and many children designed dust jackets that included their bios. Children were starting to think like experienced book authors and reviewers.

To house the children’s creations, Gene Aiken, our school carpenter, built a bookshelf, with input into the design from the children. Soon their books were overflowing into baskets under the shelf. We noticed that creating a designated space for children’s work did indeed spur more interest among the children in bookmaking: Each day we had eight to 10 more books.

Another library sprung up in the new playhouse in our yard. First, children gathered big wooden blocks to build the shelves. Then they turned a crate into a return box similar to the one in the Bing library and took great care in creating a sign for the library and artwork to decorate it. Once they shelved their books in the new library, many of them enjoyed finding them there later and sharing them with friends.

Further into our project, yet another library appeared in the block area. With a teacher’s help, children built additional shelves out of blocks and practiced sorting and alphabetizing the child-written books by the author’s first name. Children would recognize the first letter in the author’s name and then file the book under that corresponding letter. Once all books were sorted, children then practiced the act of checking out books from the library. Charles, for instance, wanted to read a book written by Michael, so he looked for the letter “M” on the shelf. During story time we sang the song, “I’m going to go, I’m going to go to the library, I wonder which library book I’m going to read?” and children like Lara demonstrated how to look under the letter “L” when searching for a book that she wrote.

Some parents became part of the project when their children asked them to pick out books they had written to read together. The children carried their interest in books home with them, too: Teachers heard many stories from children about books they were creating at home and family visits to the library.

The culmination of the project was meeting published children’s author Marcia Goldman and the main character in her books, her dog, Lola. To prepare for her visit, children read her books and prepared questions. During the visit, the children asked many questions and were especially interested in what inspired her, and how she put the books together. From her, children learned about editors, publishers and the whole process of how a book is made.

The beauty of such a lengthy exploration of books was how it encouraged the children to think deeply about the topic, allowing them to use their critical thinking skills along with their creativity. We observed children realizing they had preconceived notions about books and then observed children questioning their own assumptions. Children discovered their own answers to most of the questions raised, debating with their peers before approaching a teacher for confirmation. Children were appreciative of each other’s efforts and built on each other’s interests. We created a space where every child’s work was honored, and it was exciting to be part of a true learning environment.

The Bing Times, October 2019, p. 25
“We’ve been waiting for you, to come to this place. Waiting for you, to come to this place. Wherever you’re from, we’re glad that you’ve come. We’ve been waiting for you, to come to this place.” —Lyrics from We’ve Been Waiting for You by Tom Hunter

At the beginning of every school year, children, parents and teachers wonder how the year will evolve. Often their questions can be answered only with time, questions such as:

Child: How will I make friends?
Parent: How will my child feel comfortable at school and connect with peers?
Teachers: How will children develop respectful relationships with each other and the learning environment? How will children’s competencies become visible?

Early last fall, the West PM teaching team agreed we wanted everyone who walks through our classroom doors to know that we’re all here for the same reason—to build a meaningful class community. Greeting our families with the song above seemed an appropriate way to welcome everyone at the story time gatherings the first week of school.

Getting Started

In a West PM teaching team meeting during the fall quarter, the teaching team agreed that kindness and empathy are key to building a meaningful community. But what role would teachers play in promoting these attributes? We proposed to portray kindness to the children as a noble goal, with the expectation that this would empower them to play and connect with peers in ways that encourage empathy and increase social and emotional well-being in themselves and others.

At a weekly staff meeting, we decided that observation of children to see what they knew about kindness would be an important first step. With notebook in hand, we began to document ordinary moments, and were pleased to find that kindness abounds all session during often unnoticed moments. So began our role to bring an awareness of kind things to the attention of the children. Individual comments to children helped reinforce the power of kindness, comments like: “Did you notice how he gave his shovel to her and got another one for himself?” “Charlotte helped pin on your nametag. That was a kind way to show she cared about you!” “When you noticed his struggle cutting tape, I observed how you demonstrated an easier way to do the task.” Soon children were sharing similar comments with teachers and peers about their own experiences. “We had extra avocado at our snack table. We thought you might like some, so we brought it to your table.” “I made a letter for everyone. I made a letter for the teachers, too.” “She was sad, so I hugged her.” We listened attentively and responded with a simple comment, such as, “That was a kind thing to do. She appreciated your thoughtfulness.”

What Is Kindness?

Each day new opportunities to talk about kindness emerged at the language table. As teachers formulated questions to draw out children’s thoughts on the subject, the first question asked was, “What is kindness?” Although they often heard words such as “You are so kind,” many were not really sure how to explain kindness. So we decided to save the question for a later time and formulated a new one:

“What kind things do you do for others?”

This opened the door to children’s thoughts:

I give my brother hugs. —Willa
I help my mom carry things from Costco. —Sean
I helped cook dinner one time! —Prescott
I feed the bottle to my baby sister. —Charlotte
I bring my plate into the kitchen. —Gemma
I play Star Wars with my brothers. They really like Star Wars! Dylan, Josie…and me! —Chloe
I love my mommy. —Lucy
I did hammering for Pippa. Pippa is my sister. It was nice. —Jake

Weeks later we revisited the initial question, “What is kindness?” This time children answered with confidence. Definitions that emerged:

To help.
To be happy.
To be nice.
Being patient and being their friend.
We get to share.
Giving someone something.
Children, teachers and family members learned about the children's perspectives on kindness and empathy when we shared our findings at story time at the end of the day. Afterwards, the children's quotes were added to the display board so that their voices could continue to be heard by all who enter West Room.

The Influence of Quality Book Selection

Throughout the school year, we selected books that embraced kindness in an age-appropriate manner. Conversations about the books enhanced lively discussions at the language table and at story time.

Many of the books touched on friendship, such as Boy and Bot, Cat and Bunny, Lost and Found, The Man Who Loved to Sing and Big Al. As children shared with each other their own friendship stories, a new question emerged: “What is a friend?” Children responded eagerly:

To be kind and nice to them. —Maya

Hugging them. —Cobie

You be nice. —Chloe

We swing on the swings next to each other. —Elyse

You talk to them. —Faye

Someone you like to play with. —Drew

If they get hurt, you hug them. —Emma M.

First you meet. Then you play with them to see what it is like. Then they are your friends. —Immy

A teacher. —Alessandro

The book Something from Nothing, by Phoebe Gilman, related the story of a child who sought out his grandfather to make him something new from a blanket that had become worn. This tale sparked dialogue at the language table about the kind things grandparents do for their grandchildren.

My Nana visits me! She’s going to come to my house today. —Coralie

Mimi. She gives me surprises and lets me do art when I spend the night at her house. And she lets me watch cartoons. —Aviva

They play with me. —Kellia

Grandma took me to the airport. —Rory

They cook and have us over for dinner. Grandma does the cooking and we play. Grandpa helps grandma get the ingredients. —Ellie H.

I lost my hat at the playground and abuela got it back! —Siena

Another powerful book was Hug Machine—a story about a child who hugs everyone and everything. Children seemed to easily take the perspective of the giver or recipients of the hugs. Many children paused when a prickly porcupine asked the child in the story for a hug. Children wondered if he would be able to find a way to hug such a prickly porcupine. Would he want to hug the porcupine? The page that followed made visible the empathy the child had for the porcupine. The children in West PM were relieved that the boy in the book came up with a creative and loving way to hug the porcupine, by wearing a helmet and well-padded clothing. As children reflected on the book’s message, kindness and empathy toward peers in West PM were on the rise. Several children created their own “Hug Machine” game that included a hugging checklist. They moved about the environment giving hugs to those receptive to the offer. With each hug, children checked off boxes as they accomplished their mission: Showing kindness to others through hugs, and making new friends along the way!

As children reflected on what it means to be kind, their words and actions revealed their ability to empathize and their appreciation of the benefits of using kindness when developing relationships with peers. One example:

During a group play experience that unexpectedly expanded from two players to four players, a challenge emerged. One child was uncomfortable with the role assigned to him by his peers, and eventually with the entire play scenario.

Child 1: I don't like this game. I don't want that part.

Child 2: Well, which part do you want? Do you want to do another part?

Child 1: I don't want any part. I think we should play a different kind of game.

Parents were eager participants in the effort to build a community in our classroom. At their fall conferences, many parents mentioned how important it was for them to raise kind-hearted children and how excited they were that the class environment was another platform for children to practice skills that support this way of being. Parents supported the kindness project by talking with their children at home about the books read at story time and pointing out how characters in the story developed friendships through their kind deeds, such as inviting a friend to play, comforting a friend when sad, or helping a friend in need. Parents also volunteered their time in the classroom: On average, one to two parents helped each week with clay, cooking or other projects they were passionate about. By carving out time to be with us, parents had opportunities to engage with their child as well as to develop relationships with other children and teachers in the class. Children became comfortable engaging with the parents as honored members of the community. These experiences also created opportunities for teachers and parents to get to know each other and learn from each other as they worked side by side supporting the children.
There is silence among the three players comfortable with their roles. Child 2 breaks the silence when he sees the concerned look on his friend’s face: Hey, I know, let’s look for worms!

Child 1, 3 and 4: Yeah! Child 2: That is a good idea! Child 1’s face lights up with a huge smile: It is something all four of us can do. And we all like it! They run as a group to find worms.

The problem was solved with empathy and kindness. Days later, after developing a stronger relationship as a foursome, the child who was hesitant to engage in the active play scenario decided he wanted to revisit the game. By building a trusting relationship within the group, the play had a successful outcome because they all agreed to honor boundaries when playing the game.

Research has shown that kindness and empathy are qualities that become contagious when modeled. The outcomes that practicing kindness and empathy brought our classroom were appealing to all involved.

By creating a community centered around kindness and empathy, children were able to develop respectful relationships with each other, teachers and parents. Parents and teachers observed first-hand how pursuing acts of kindness can strengthen peer relationships and thoughtful and engaging play. Showing kindness has allowed children opportunities to problem-solve in a way that keeps the play moving in a positive direction, and kindness has allowed children to develop friendships with a variety of peers.

Lastly, although there are many ways to answer the questions on the minds of our classroom community at the beginning of the year, we were delighted that the response for each question could be answered with "through kindness and empathy.”

Attempting to see the world from a child’s perspective is a reflective teaching practice that’s especially helpful for understanding children’s early learning experiences, particularly in an outdoor learning environment. So let’s exit East Room’s doors to see life in the outdoor classroom through a child’s lens.

In East Room’s outdoor classroom, the area called the neighborhood serves as a crossroads between the sand area and patio, offering a breadth of elements that contribute to the quality of children’s early learning experiences. In the wake of winter, the “squelch squerch” of muddy shoes trudging through the neighborhood’s expanse of dewy field, in concert with the “swishy-swashy” music of moving through untamed grass, is delicious. By repeating the sensory experience of bringing one’s shoe in and out of the muddy terrain, the child comes to experience a new perspective on this otherwise well-known landscape.

The early childhood education leader Bev Bos crystallized the concept of how direct sensory experiences educate the child in her statement, “If it hasn’t been in the hand and body, it can’t be in the brain.” Encountering thick, oozy mud beneath one’s shoes needn’t be framed as a misstep, but rather as an opportunity for a child hungry for understanding the world to learn through first-hand experimentation and discovery.

As children climb the neighborhood’s redwood tree trunk to the highest point feasible, they realize their power. Children gain an intimate connection with the elements of the outdoor classroom,
informing their holistic development. Repeated experiences of engaging with the redwood tree generate the subtle yet profound awareness of reciprocation—the tree is alive, a friend to the child, offering a steady presence that says, “I am here, and next time I will be here too.” Crouched beneath the redwood, a child conveys, “I’m having quiet time.”

Sheltered beneath the bamboo forest that lines the back corner of the neighborhood is a magical place, to the child’s mind. Whispering green, the bamboo shoots slice through space and sky, offering a hideaway for the child looking for calm. Surrounded by nature’s protective blanket, this space appears soft and nurturing. Then comes the child searching for adventure—running swiftly, moving sharply, between the plants: now this place is rugged, tumultuous, perfect to match the child’s changing nature. Wild or serene, moment to moment, the natural elements of the outdoor classroom never fail to see, know, understand and immaculately reflect the complexity of the child’s disposition.

The expanse of grassy hills and slopes stretching across the neighborhood provide a vastness for large, quick, abrupt movement. Here the child is free to move fast from place to place, the earth beneath the child’s body is solid—affirming the child is grounded and safe. The child experiences the openness of space through the body’s movement across the changing terrain. Maneuvering through challenging, imperfect landscapes of uneven ground, dips and grooves, requires the child to be aware of—and adjust the approach to—physicality while moving in accordance with boundaries and nuances as they arise. The established outdoor environments afford children the experience of creative freedom of movement.

Children’s deep concentration, imagination and brilliance may be observed in how they engage with nature’s loose parts. Be it a single flower or a handful of pebbles, these natural materials are viewed by the child as resources that define opportunities for learning. Each item generates a purpose and meaning determined by the child. Children construct knowledge, define play and create stories based on their interaction with the plethora of loose parts they discover in the natural world. Here, children artfully arrange natural materials to establish a habitat for worms discovered in the muddy landscape.

Two children notice ants beneath the ornamental grasses that border the neighborhood’s path. They kneel to the ground, closely examining what they see. Tracking the ants’ route with their eyes, the children see they are moving between a bush and the grasses. Curiosity is piqued as the children gather data and make predictions. One child decides, “They need a house!” The children proceed to run from this furthest point of the neighborhood’s perimeter to the indoor classroom. They return moments later, excitedly running across the grass carrying cardboard, paper and tape. They embark upon a nearly two-hour play episode rich in investigative learning, deeply rooted in their curiosity about what they have encountered. The play episode included further trips indoors, with the children returning outside with scissors and recycled materials to repurpose for their work. The children propped the homes for ants beside the ornamental grasses, continuing to watch with interest.

Over the course of the next months, the children periodically revisited the ant project, altering their hypothesis about what ants need in a home. In support of the children’s work, a teacher presented their ant home creations for the children’s continued consideration and supplied magnifying glasses, paper and pencils so they could engage in representational drawing—another process to advance and record their thinking. Months following this experience, while the two children were standing atop aluminum ladders to observe and commune with trees, one child noticed an ant. Gazing out toward the ornamental grasses, he paused, then turning fondly toward his peer, remarked, “We’re friends because one time we made ant homes.” This moment illustrates a powerful concept for the attuned teacher: Children’s play episodes are not experienced as tangents—each thread of experience is an important part of an intricate tapestry that is always evolving, the colors and textures of which interconnect in a cohesive design.

The fruits of Bing’s foundational principles to protect children’s uninterrupted play experience and to welcome freedom of movement are particularly evident in the outdoor classroom. Here, children’s experience of physical freedom works in tandem with their engagement in creative expression, social problem-solving and cognitive learning. Opportunities for discovery are boundless as children merge concepts across developmental domains. The outdoor classroom is a sanctuary, in perfect alignment with Bing’s concept of the child as honored guest—home to children’s ideas, creative genius, contemplative solitude, freedom and friendships. Recognizing the child’s innate interest in communing with nature, coupled with deliberate observation, reflection and research, provides the teacher with valuable insight into the child’s world.
Playing and Working Together: Building Classroom Community in East AM

By Todd Erickson, Head Teacher

Each Bing nursery classroom looks toward new growth opportunities at the beginning of the academic year. In our mixed-age nursery programs, the newly arrived younger children are learning day-to-day practicalities while building secure emotional bridges between home and school. The older children are surveying the new social landscape while excitedly considering their roles as experienced players and perhaps mentors. New additions to the classroom teaching team allow teachers to enjoy wider collaboration as well as professional growth. Parents are building or strengthening trust and connection with the teachers while looking for support with the rewarding and arduous process of parenting.

In the face of these yearly changes, each classroom slowly but surely constructs a sense of community. While community can mean different things to different people, the Bing nursery classroom offers children and families a process-focused prospect to play, learn and grow together in a safe, respectful, child-centered and strengths-based environment.

Last year the East AM team welcomed the arrival of new teachers, including myself, which strengthened our team’s resolve to create a vibrant and resilient community. To create a community where children and parents alike could build trust, deepen respect and embrace a love of play and learning, we mixed longtime Bing traditions and early childhood best practices with newer innovations, such as an interactive blog.

During setup week—the week before classes begin—the classroom’s teachers talked extensively about the importance of play, the various modalities of support and guidance we could offer a child, the importance of trying new things (and learning from resulting successes and failures) and the power of peer-to-peer empathy. We reminded each other that teachers and parents are always doing the very best they can, often under challenging circumstances. This perspective bolstered our kindness, graciousness and patience as we headed into the new year. To help with the daily responsibilities of a reflective teacher, each team member was given a small notebook that could be used for anecdotes, questions or ideas of all shapes and sizes.

Some avenues for community building came naturally because of Bing’s teaching philosophy. Key Bing tenets such as treating children like honored guests and providing them freedom of choice and movement during unstructured expanses of time, which we call “the gift of time,” helped children to feel welcomed, empowered and valued. Their burgeoning sense of security and assurance made it easier for them to begin to consider the wider perspectives encountered as part of a community, such as different styles of play and varied food preferences. As mentioned above, a mixed-age classroom provides younger children the chance to be mentored by the older children, which not only generates and fortifies relationships but also teaches responsibility and reciprocity.

These philosophical components were reinforced through the regular features of the class schedule. During each session the children came together at their snack tables, forming micro-communities that spurred conversation, creativity and awareness against the backdrop of fruits, vegetables and crackers. At the end of every morning, the entire classroom assembled for our session-ending story time: a potent combination of storytelling, hootenanny, art exhibition and town hall meeting. It was on the story time rug that the children and families joined together to sing, laugh, move and wonder.

In early fall, the teachers introduced the classroom mailboxes, small receptacles designated for the children in our community, which allowed them to send drawings or notes to their peers and teachers. They also sent mail to Gene Aiken, Bing’s master carpenter; Mara Beckerman, the music and movement specialist; and Alice, the classroom rab-
bit. As children sent and received mail, they became more deeply rooted and invested in their East Room environment.

As a teaching collective that believed in following the lead of the children and embracing contributions from the community to create meaningful experiences and learn together, the East AM team welcomed gifts such as the 100-pound pumpkin that was supplied to us by one of our families. Each day, the children teamed up to roll the pumpkin onto the art table and then off (through physical grit and the construction and deconstruction of a ramp made of blocks). They also spent time examining, drawing and making guesses about this large visitor. When the children increasingly exhibited their interest in physical work, the teachers employed our loose car tires to offer various challenges, including tire lifting, tire rolling and tire pulling. By banding together to face these challenges, the children discovered the might of their collective efforts. Yet another community-building present offered by parents and adult family members was classroom participation. Whether it was help with a cooking project, advice during the taking apart of a retired computer printer or musical accompaniment during story time, the presence of friendly parents and family members during the morning reminded all children about the support gladly offered by the adults in their lives.

“Every child is an artist,” Pablo Picasso is said to have stated. Given children’s natural creativity, the East AM teachers explored stories and music to strengthen communal ties. In addition to the book read at story time, spontaneous picture-book reading during the morning session always enticed an eager group of children. These informal readings allowed for an array of questions and conversation, usually inspired by the narrative. After one week of reading the same book at story time, the children were sometimes invited to act out that story the following week during our music time. For example, after we read the African folktale Why the Sun and the Moon Live in the Sky (written by Elphinstone Dayrell and illustrated by Blair Lent), during the next week’s music time the children dove into the various roles from the tale. While one child pretended to be the Sun, another was interested in portraying a Water Creature, while yet another waved the luminous blue material that served as the story’s flowing water.

The Zimbabwean proverb “If you can walk you can dance, if you can talk you can sing” inspired our classroom community to move together and sing together. Mara Beckerman, Bing’s new music and movement specialist, artfully connected children through her daily combination of music, song and movement. Even without Mara, the classroom was filled with song and movement. Our daily singing and movement at music time, and again at story time, provided our expressive community moments of shared joy and inspiration. Whether we sang about visiting the bakery shop to buy pie slices during music time or went leaping and hopping on a moon shadow during story time, common melodies and experiences brought us closer together as a classroom. And because we cannot sing enough in East Room, we also welcomed our families to sing-alongs at the end of every academic quarter. As we lifted our cross-generational voices together to revisit some of our beloved story-time songs from the previous quarter, we appreciated more deeply the gift that is East AM.

Of course, community was also vital for the adults in our classroom. Starting with our orientation session and our fall family potluck picnic, and continuing through Back to Bing Night, the Harvest Moon Auction, the Distinguished Lecture Series, the Bing Children’s Fair and our spring family potluck, East AM parents and families relished the opportunity to create bonds and widen perspectives through shared experiences, conversation, laughter, bread-breaking and, most importantly, playfulness.

East AM’s classroom blog has also played an important role in bridging school and home. It served as a powerful medium for the teachers to share both practical and philosophical information, as well as photographic documentation from the classroom. The blog also provides children and families with an enjoyable memory matching game created with children’s headshots.

Our classroom was forged through thoughtfulness, collaboration, diligence and esteem. With the powerful Bing tenets as our foundation and play as our landscape, children and adults learned from and with each other as we created our own exquisitely powerful community.
At Bing Nursery School’s 2018 fall staff development day, Bing staff examined the school’s curriculum, learned about new research on child development, and took part in a workshop on creative movement.

The event, held Oct. 5, 2018, began with a discussion about the competencies, skills, understandings and dispositions children are developing while at Bing. The discussion was led by Emma Vallarino, manager of Bing’s Kordestani Family Program for Parents and Educators, and Adrienne Lomangino, head teacher, who also works on the program. Breaking into classroom-based teams, head teachers facilitated an examination of the current Bing curriculum through the domains of cognition, social and emotional growth, physical development, language/literacy and self-expression. Teams returned to share their findings with the larger group, inviting thoughtful discussion that introduced specific methods for supporting the development of Bing’s curricular goals through the use of materials and activities.

Following Vallarino and Lomangino, Bria Long, a Stanford postdoctoral fellow, presented her research on the development of drawing behaviors in children in a presentation called “Drawing as a Window into Developmental Changes in Object Representations.” Through her work with professor Michael Frank in Stanford’s Language and Cognition Lab, Long is developing methods to measure what children know about object categories and quantifying those data points in relation to children’s representational drawings. To learn more about Long’s work, see page 8.

The day finished with a workshop that engaged the entire staff in a “Brain-Dance,” an experiential session of movement and exploration. The workshop, led by Bing’s music and movement specialist, Mara Beckerman, emphasized awareness of one’s body within space. The Brain-Dance, developed by dance teacher Anne Green Gilbert, challenged participants to tune into their breathing while following an unchoreographed, free-form sequence of movements similar to those of a baby as it develops during the first year of life: moving only the upper half of the body, then the lower half, then the right side, then the left side, and progressing into crossing the midline to the opposite side of the body, twisting, swinging and turning. Beckerman’s rhythmic drumbeat guided the staff through various movements intended to examine one’s personal space within a larger group area. Through a series of prompts by Beckerman, participants were challenged to create various shapes with their bodies. Beckerman closed the session by teaching “Sorida,” a traditional chant from Zimbabwe. Many Bing homes have no doubt been filled with the sounds of this delightful hand-clapping game, as it has become a favorite among the children!

---

Winter Staff Development Day: Fostering Creativity and Innovation

By Betsy Koning and Jenna Rist, Teachers

The winter staff development day at Bing Nursery School this year focused on sociodramatic play in the classroom—its themes and its value for children. The staff also heard presentations from two Stanford graduate students on the research they are conducting at the school. The event took place Feb. 19.

Sociodramatic play—the form of play in which children act out pretend real-life scenarios with one another—provides rich opportunities for children to learn and grow together as they take on roles, navigate a storyline and advance a plot. At the staff development day, Emma Vallarino, manager of Bing’s Kordestani Family Program for Parents and Educators, and Adrienne Lomangino, a head teacher who also works on the program, led the attendees in two video analyses of sociodramatic play scenarios in the classrooms. Teachers viewed one video from the Twos classroom of children preparing for and taking a trip together, and another from a Nursery classroom of children cooking for babies, both of which prompted much discussion among the teachers. In both cases, the children’s play attracted observers who discovered common threads, props and roles before trying to enter the play as new participants. And teachers are able to support and extend this play by bringing in additional materials to advance the script, setting up the space to encourage this type of play to continue, and stepping in when conflict between players occurs.

Russian psychologist Lev Vygotsky stated that, “In play, a child is always above
his average age … in play it is as though he were a head taller than himself,” and nowhere is this truer than when a child is engaged in sociodramatic play. This play helps children to process and accept new ideas and experiences and to process roles or concepts that may be scary or not yet understood. It also gives them opportunities to play with big ideas and re-create experiences in a way that allows them to exert control. They also practice many social skills while engaging in sociodramatic play, such as problemsolving, negotiating ideas, practicing inclusivity, learning to interact with new peers, navigating different personalities, taking another’s perspective and many others. Dramatic play allows children to come together through the common language of pretending—it doesn’t matter if other players have knowledge or experience with the topic, as long as they can pretend together and be flexible with each other’s ideas.

Vallarino and Lomangino also discussed the upcoming Kordestani Family Program for Parents and Educators’ summer educator session, which will examine children’s sociodramatic play.

One of Bing’s missions is to support Stanford research on child development. Two doctoral students from Stanford’s Social Learning Lab, Natalia Vélez and Mika Asaba, spoke to the Bing staff about the research they are conducting at the school.

Vélez explained that her research project, currently in its very early stages, strives to determine whether we can learn the costs and rewards of potential choices by observing others. Specifically, the project explores how children infer the weight of a box by combining their beliefs about another person’s strength with the outcomes of that person’s actions. In the study, children are introduced to a puppet who is either weak or strong. The children then see this puppet lift a new box—which the children have never touched before—and either succeed or fail. The children are then asked to move the box themselves, and the researchers use sensors to record how much force the children use to move the box.

The goal of this study is to observe how children adjust their force based on their observations; for example, the children should expect the box to be heavier—and thus work harder—if a strong puppet failed to lift it than if a weak puppet failed to lift it. When looking at the bigger picture of child development, the results of this research will help determine the role that social observations play in how children learn what’s difficult and what’s worth pursuing.

The second research project, presented by Mika Asaba, seeks to explain what motivates children to communicate information about themselves and their abilities to others. Are children sensitive to what others think of them, and do they have a desire to be seen positively by others? The researchers’ hypothesis was that children may communicate about themselves to others to change what others think of them.

The first study asked whether children are strategic about who they communicate with regarding their abilities. The researchers observed children playing with a musical toy in different situations. One researcher watched as the child was unable to make the toy play music, and another researcher watched as the child was able to make the toy work; in reality, the experimenters controlled whether the toy worked. When asked who to tell that they can make the toy work, children chose the person who previously saw them struggle with the toy.

The second study asked what information children decide to share with others. Here, children played with a toy as a researcher observed them: They were unable to make the toy go a few times, but eventually got it to work. When a researcher had seen children’s success at this toy, children chose to show a second, new toy to the researcher. However, when the researcher only saw the child struggle with the first toy (but not succeed), children were more interested in showing the first toy to the researcher, suggesting that they wanted to specifically demonstrate their abilities to others.

The results of this study suggest that even preschoolers are sensitive to what others think of them and can effectively communicate about the self to others. Future work will examine how others’ beliefs about the self might influence learning in this age group, and in so doing may influence how teachers interact with learners.

It’s a hurricane. It can wreck houses. By Henry P., 4 years 10 months

Maze. By Alina L., 3 years 4 months

By John C., 3 years 11 months
Spring Staff Development Day
By Tayna Gonzalez-Rivera, Teacher

On April 29, 2019, Bing held its spring staff development day at the Tower House, where staff gathered for two lectures from researchers in Stanford’s Department of Psychology. The first presentation was given by postdoctoral scholar Yang Wu and was titled “Emotion as Information: Inferring the Unobserved Causes of Others’ Emotional Expressions.” Wu explored whether children can capitalize on others’ emotional expressions to recover rich information about the world and to guide their own learning, exploration and discovery. For a detailed account of this talk, please see page 9.

The second presentation was given by doctoral student Erica Yoon, who works alongside Professor Michael Frank in the language and cognition lab. Her talk highlighted how language can reveal different goals that speakers have and how children process and understand polite language. In her talk, Yoon proposed two main goals for communicating with others. One goal is informational, which she defined as “conveying truthful information as efficiently as possible.” The second goal is social, which she defined as “making the listener feel happy and respected.” Yoon established that at times these goals may be in conflict. In these instances, a trade-off comes into play: People have to choose whether to give the most truthful and informative answer or whether to say the nicest thing possible, even if it is false.

In her research, Yoon was interested in whether and how children and adults think about polite speech, in terms of the social and informational goals and the trade-offs that could happen when communicating with others. The first study explored children’s understanding of simple politeness rules, like saying “please” or “thank you.” She found that by age 4, children perceive peers who say “please” as polite and as better play partners. Yoon’s second study focused on children’s and adults’ understanding of polite lies as reflecting the conflict between the informational goal and the social goal when communicating. This study of adults and children found that by age 6, we do in fact understand that social and informational goals can be in conflict, and we know when to prioritize one over the other, based on the context. Furthermore, as age increases, people gain greater understanding and consideration for others’ feelings, and tend to prioritize the social goal when communicating.

CONFERENCES

CAAEYC Conference 2019
By Parul Chandra, Adrienne Lomangino, Emma Vallarino, Nancy Verdtzabella, Head Teachers, and Beth Wise, Associate Director

This year six Bing teachers were among the presenters at the 2019 annual conference for the California Association for the Education of Young Children, offering four workshops on a variety of topics. The conference was held April 11–13 in San Jose. Following are synopses of the Bing teachers’ talks.

Music and Literacy Connections
Presented by Nandini Bhattacharjya, Leslie Hart and Beth Wise

Music is a natural way to extend stories, build strong literacy skills and deeply engage children in the classroom. Combining music with stories offers children an opportunity to learn about tempo and rhythm, verses and rhyme, repetition, and story structure in a way that unites and motivates children to develop both music and literacy skills.

This interactive workshop explored the value of music and literacy and the natural connections between them using music, stories, activities and songs. Associate Director Beth Wise, Head Teacher Nandini Bhattacharjya and former Bing Music Specialist Leslie Hart shared ideas, classroom experiences and examples of how they have created materials to extend literature through music. Participants learned how to enhance musicality in their classrooms while extending children’s experiences with story and print. The presenters used current research and understanding of how children learn to illustrate how music is connected to literacy development. They shared many examples of ways in which a musically rich environment invites all learners to be more deeply engaged in literacy, as well as offering techniques for educators to try in their
classrooms. The workshop encouraged teachers to become comfortable and creative with designing and presenting material that is engaging for children—and to be more confident in their ability to do so. The participants experienced step-by-step examples, using instruments, songs, posters and video analysis.

**Promoting Effective Communication Strategies: Affirmative Guidance for Young Children’s Learning and Growth**

*Presented by Parul Chandra and Nandini Battacharjya*

This interactive presentation shared our guidelines for interactions with children at Bing. The workshop included video analysis and discussion focusing on the teacher’s emotional awareness of the child, and on ways to model positive interactions that children can draw upon in their own lives. The presentation provided communication strategies for teachers to use related to:

- social problem-solving
- redirecting inappropriate behavior
- addressing feelings: acknowledging and validating
- commenting on children’s work
- children’s friendships
- children’s accomplishments and failures
- developing a growth mindset

Effective communication is a powerful tool in supporting young children’s development, but it’s not the only tool. In the presentation, we addressed some other approaches teachers can use to maintain a high quality of interactions in support of children’s development, including being authentic and sincere, teaching by modeling and, most importantly, enjoying their interactions with children.

*Communication is at the heart of child development, be it cognitive, social, emotional or behavioral.*

—Lev Vygotsky, *Mind in Society*

Vygotsky’s quote supports our work with children and the focus on the deep value of effective communication strategies used by teachers in their classroom.

**Three Lenses on Teacher-Child Interaction: A Video Analysis Workshop**

*Presented by Adrienne Lomangino and Emma Vallarino*

Teacher-child interactions are the foundation of high-quality early education programs. Led by a skilled, reflective teacher, educational interactions can occur in any environment, with any materials, at any time. Early childhood educators make choices in each moment throughout the day about how best to support children’s play. Should I get involved? What do I say or ask? The answers to such questions vary, depending on how one views the teacher’s role in play.

This workshop highlighted three research perspectives on how teachers can best support children’s play: improvisation, the Classroom Assessment Scoring System (CLASS), and good-fit interactions. Participants used these views as lenses to examine videos that highlighted the interplay between teachers and children in various play-based activities. Education scholar Gert Biesta highlights the important role theoretical frameworks play in advancing teachers’ practices. As he points out, “By looking through a different theoretical lens, we may also be able to understand problems where we did not understand them before, or even to see problems where we did not see them before […] As a result, we may be able to envisage opportunities for action where we did not envisage them before.”

These three approaches to studying teacher-child interaction vary in their goals for interaction, role of the teacher and intended outcomes for children.

Participants reflected on how these approaches relate to their own practice and pedagogical choices. In addition, they gained awareness of different, valid ways of engaging in responsive interactions with the children in their care. The video examples of high-quality teacher-child interactions included teachers’ pedagogical choices that are relevant to working with children across all ages.

Through analyses of these videos, participants identified key characteristics of responsive interactions that can translate to any educational context.

**Outdoor Environments: A Place for Inquiry, Exploration, Discovery and Collaboration**

*Presented by Nancy Verdztabella*

This presentation highlighted how the outdoor environment, when thoughtfully designed and realized, can influence how children use the space to enhance their development. The Bing yards, designed by Edith Dowley, founding director of Bing Nursery School, have a history of attracting children’s attention as a place for inquiry, exploration, discovery and collaboration.

Participants were taken back to the early 1960s to learn about Dowley’s vision of developing the outdoor space as an important part of the learning environment. Dowley recognized the importance of curating a natural outdoor space where children could meander through the yard at their leisure, explore, and feel independent. The variety of natural life such as trees and bugs, and movable equipment such as boards and A-frames, created a space that encouraged freedom of movement, curiosity and investigation.

The presentation also made a connection between the past and present through three current stories, told via video and slides, about the meaningful learning that continues to take place in the yards. The stories highlighted how teachers continue to set up the environment with relevant materials that draw children’s interest, which leads to focused learning investigations.
Learning ways to teach astronomy to young children and meeting authors of some of our favorite children’s books were two highlights from the 2018 National Association for the Education of Young Children conference. Four Bing teachers, including myself, were among the more than 9,000 early childhood professionals attending the annual meeting, held in November in Washington, DC. It was energizing to be surrounded by so many passionate educators in a city where some of the most influential decisions in the world are being made.

Over the four-day event, our small group attended sessions, choosing from hundreds of presentations covering a wide range of relevant topics that both inspired and affirmed our work.

Topics ranged from developmental theory and the nuances within our daily practice to advocacy opportunities and how public policy is impacting the field of early childhood education.

Many presentations seemed likely to resonate not only with educators but parents. Among them was a talk by Bing’s Jenna Rist, discussing her research examining Bing’s play-based approach to learning through the lens of the Common Core State Standards. (An article about this topic can be found in the 2017 Bing Times at https://bingschool.stanford.edu/bingtimes.) Other presentations that I felt would resonate with educators and parents alike were the Children’s Books Author Talks and the Inquiry Science session.

Children’s Books Author Talks

The presentation “Children’s Books Author Talks” was of great interest, featuring some of the favorite authors of Bing children and teachers. One speaker was Mac Barnett, a bestselling author hailing from Oakland. He gave an engaging talk that provided additional insight into his thinking and perspective as he considers material for his stories: “A book that gives you answers—that’s a reference book. A book that gives you questions—that’s a story book.” Bing teachers share his desire to foster children’s curiosity and analytical thinking, and find that his books often generate questions, conversations and wonder among the children and teachers. Although his books (including his graphic novels) typically have a connection to his own life story, he said he intentionally tells his story in a space between reality and fiction: “A good story leaves room for a child to make the book their own.” You may have enjoyed Barnett in your child’s classroom, as our library holds many of his books, including Extra Yarn, Sam and Dave Dig a Hole, Triangle, and The Wolf, the Duck, and the Mouse.

We also heard from Amy June Bates, an author and illustrator for children’s books, who cares deeply about the messages and content of the books that she helps create. The Bing teachers appreciated her commitment to inclusion, social justice, and how art in children’s books can be used to communicate kindness and empathy. “Books teach us empathy. Books take us to places and, more importantly, to people we don’t know,” she said. Her latest book, The Big Umbrella, is in our library and captured the hearts of the educators in the convention center. The inspiration for the story came from her daughter, Juniper, who co-wrote the book with her. In a conversation on their rainy walk to school, Bates recalls worrying that they wouldn’t be able to share the umbrella. Juniper said, “Don’t worry, Mom. There’s always room under the big, friendly umbrella.” As they continued their discussion about school and the conflicts Juniper had been experiencing, they decided that a big umbrella could be a wonderful symbol of love and acceptance. It became the centerpiece for their first book together.

Inquiry Science: Earth and Sky in Pre-K Classrooms

This collaborative presentation was led by several science educators in school districts, museums and universities from the DC area. They discussed the need for early childhood classrooms to incorporate nature and astronomy investigations as part of their curriculum. The presenters’ understanding of child development, the importance of meaningful and age-appropriate experiences, and the competence of children to inquire about these scientific concepts was refreshing and insightful. Furthermore, the presenters provided specific examples of how inquiry-
NAEYC Professional Learning Institute

By Chia-wa Yeh, Head Teacher and Research Coordinator

A mong the topics featured at this year’s NAEYC Professional Learning Institute were the power of questions, teaching math through stories, and new teaching resources for professional educators and parents. The conference, organized by the National Association for the Education of Young Children, was held in Long Beach, California, June 1–5. Designed for all early childhood professionals, including teacher trainers, teachers, program administrators and researchers, the institute featured thought-provoking sessions on a wide range of topics. Following are some of the highlights:

How Can Big Questions Support Language and Thinking?

Janis Strasser, author of *Big Questions for Young Minds* (2017), led an interactive workshop on ways to stimulate high-level thinking in children by asking them good questions. She led the attendees through exercises to practice using questions to accomplish educational goals—in particular, the goals described in Bloom’s Taxonomy, a widely used system of classification of six educational goals.

The system, devised by educational psychologist Benjamin Bloom and his collaborators in 1956 (and modified in 2000), categorizes levels of cognition within a hierarchy of complexity. The presenter stated that all questions have value, and that it’s important to have knowledge of basic facts to advance to a higher level.

At the workshop, attendees sat at round tables, working with a variety of materials and asking each other questions aimed at supporting language and thinking. Examples might be as follows if working with shells:

Level 1: Remember (identify, name, count, repeat, recall)

*How many shells do you see?*

Level 2: Understand (describe, discuss, explain, summarize)

*How would you describe the textures of these shells?*

Level 3: Apply (explain why, dramatize, identify with relate to)

*Have you ever seen shells? Where was that, and who was with you?*

Level 4: Analyze (recognize change, experiment, infer, compare, contrast)

*How do you sort them?*

Level 5: Evaluate (express opinion, judge, defend/criticize)

*What’s your favorite, and why?*

Level 6: Create (make, construct, design, author)

*How about creating a creature with the shells?*

Is It Fair? Equalizing, Equivalence and Equity in the Math All Around Us

In an enlightening session, Mary Hynes-Berry, author of the newly published book *Where’s the Math: Books, Games and Routines to Spark Children’s Thinking*, and Donna Johnson, both of the Erickson Institute, presented on using books with mathematical concepts embedded in their stories in order to discuss mathematical ideas with children.
“Mathematics is much more than counting and naming shapes. It’s a logical way of thinking that allows for precision,” stated the presenters. They urged attendees to think critically about everyday life, books and stories through a lens that encourages discussions using mathematical concepts.

The book The Door Bell Rang is a good example. At the beginning of the story, two siblings are about to enjoy the cookies their mother baked, with six cookies each. But each time the doorbell rings—bringing visitors to share the cookies—the number for each child goes down: from six to four, to two, and eventually to one for each. How can a teacher highlight the math in the story? Equalizing is one of the things children can learn about by unitizing (creating equal groups to form a set) so everyone has the same number of cookies. The units can be in two groups of six, three groups of four and 12 groups of one in order to accommodate different numbers of guests. A surprise twist comes at the end of the book when the doorbell rings again. What should the children do? Eat the cookie before opening the door? What would be fair? It turns out it’s the grandmother, who has brought a large tray of cookies. As the attendees reflected on the question of fairness, one participant shared that she works in Hawaii and that the culture there is one that welcomes everyone contributed something as an example the story Stone Soup, in which everyone contributed something according to their ability and the result benefited all involved as members of a true community.

Family Math, Learning Trajectories—Online Resources

Douglas Clements of the University of Denver, Eric Dearing of Boston College, and Linda Platas of San Francisco University presented on “Supporting early mathematical development everywhere: Resources for teacher educators, teachers, caregivers and families.” The presenters are part of the Development and Research in Early Math Education network (DREME: dreme.stanford.edu), which provides free online resources on early math learning.

Dearing shared with the attendees that the DREME network is developing resources for supporting family engagement in early math learning. Research has shown that family engagement in numerical and spatial support is predictive of math skills prior to and after school entry. But there’s a great deal of variability in how much families engage in early math learning with young children.

What are some of the ways families can integrate math into daily life with young children? Cooking is a wonderful activity that parents and caregivers can enjoy with children. Take making a smoothie, for example: Children can count the ingredients (e.g., strawberries) one by one when adding them to a measuring cup, as called for by the recipe. After counting, the question “How many strawberries are there?” helps children understand cardinality: the final number indicates the quantity of the items being counted. When using a measuring cup, ask “How many more blackberries do you think we need to fill it and make one cup? Let’s guess together and see if we’re right.” Grocery shopping at the market is a great opportunity to make comparisons about length, size and weight, and to talk about spatial relations. Sorting laundry is another great activity for sorting by different categories. Keep it fun and meaningful!

Clements introduced a free online professional development resource tool for parents, teachers and caregivers on early math learning—learningtrajectories.org—that he created with his colleague and wife, Julie Sarama, also of the University of Denver. The website provides activities in a developmental progression to support children’s progress to the next levels.
On a sunny, blustery morning in February, I and six other Bing teachers arrived at the Fairmont Hotel in San Francisco for three days of rich presentations on the theme of empathy. Sixteen hundred other registrants and 66 speakers also attended this conference, titled “Educating with Empathy: Cultivating Kindness, Compassion, Cooperation and Good Behavior.” It was held by Learning and the Brain, an organization that connects educators with the latest research on the science of learning, and co-sponsored by research centers and labs at Stanford, UC Berkeley, UC San Francisco, Harvard and other institutions.

Presenters came from all over North America, including many from Stanford. They were educators, neuroscientists, pediatricians, psychotherapists and more. The presentation topics were on the socio-emotional components of learning and the brain, including everything from our primate ancestors (Richard Wrangham, Harvard), from discovering people who had rescued children from the Holocaust to helping students fathom the number of victims in the Holocaust by creating a collection of 6 million paper clips (Michele Borba).

In one keynote, Shauna Shapiro of Santa Clara University taught us about mindfulness, a term that originally comes from the Buddhist concept of sati, an important part of Buddhist practice. Shapiro noted that the concept of mindfulness was successfully introduced to the west by Jon Kabat-Zinn, PhD, who had developed the Mindfulness-Based Stress Reduction program in 1979 at University of Massachusetts Medical School. Currently, mindfulness is part of the vernacular of many institutions, both educational and corporate. Mindfulness is not a thing, but rather an aspect of the mind, an action we can take. Shapiro spoke of intention and attention, seeing clearly and responding effectively. During this session, more than 500 attendees did an exercise involving silence and controlled breathing.

On Sunday, the third day of the conference, Katherine Reynolds Lewis, journalist and author, discussed her investigations into why children today seem to have more behavioral disorders than they did in the recent past. She found that the increase in behavioral disorders was due to: 1) lack of play, 2) influence of media/technology, and 3) high expectations for performance and achievement.

Wrangham, a professor in the Department of Human Evolutionary Biology at Harvard, discussed why humans evolved with a tendency for nonaggression, yet also with a tendency for competition and violence—a phenomenon he describes in his book *The Goodness Paradox: The Strange Relationship Between Virtue and Violence in Human Evolution*. The paradox is that *Homo sapiens* evolved to be reluctant to engage in violence face-to-face, but has no problem being violent when the victim is far away or considered to be “other,” he said. We can easily be aggressive toward the other, as Germans were during the Holocaust, he said, because we can believe we are anonymous to those we’re harming.

Wrangham told us how humans evolved to be less aggressive than our closest hominid relatives, the chimpanzees. He said, “Language gave us the ability to control the most violent males” in early *Homo sapiens* communities. That control came from removing the violent member from the group, an act that would not be possible without coordination facilitated by language. Human aggression evolved away, like a wild trait in a domesticated animal.

Jamil Zaki, assistant professor of psychology at Stanford, told us the word empathy is a modern term, created in the early 20th century from Greek terms meaning “in” and “feeling.” The word came into common usage only in 1950. Zaki told us *Homo sapiens* is collaborative, and he called the rise of humans “survival of the friendliest”. Those who were collaborative mates and continued in the group.

These are just a handful of many highlights from the conference. No one can do or see all, but being with other Bing teachers during presentations and the poster session gave us opportunities to discuss and share information with one another. We also found much of interest at the conference bookstore, which was filled with the presenters’ publica-
The Children’s Music Network Conference

By Mara Beckerman, Music and Movement Specialist

I was excited to attend The Children’s Music Network International Conference, Oct. 12–14, 2018, in Sandusky, Ohio. I would not only be attending, but would also be presenting a workshop on the power of creative movement.

The Children’s Music Network (CMN) was founded in 1987 as a way to celebrate the positive role of music in the lives of children by sharing songs, exchanging ideas and creating community. The principles of the group state: “We recognize children’s music as a powerful means of encouraging cooperation, celebrating diversity, building self-esteem, promoting respect and responsibility for our environment, and cultivating an understanding of nonviolence and social justice.”

The conference began Friday evening with a welcome speech and a musical “getting to know you” game that had us walking around and engaging in song with other participants. This was then followed by contra dancing, and then the eagerly anticipated “Round Robin,” which is a yearly conference tradition. All attendees, young and old, can sign up to perform a song of their choice, which in many cases is an original composition. It is an opportunity to learn new material, meet and experience the amazing, talented people attending the conference, and perhaps even become part of a pickup band to help perform the song. Not everyone is a professional performer, musician or music teacher, but all shine at the Round Robin.

Though the conference is primarily for adults, children often come along with their parents. One year I brought my then 11-year-old daughter, and she still remembers leading an entire room in an amusing “do as I do” camp song. I was amazed that people at the conference this year still recalled it and asked how my now 23-year-old is doing!

Saturday’s program included a varied choice of workshops and a keynote address presented by Tawnya Pettiford-Wates, professor of theatre at Virginia Commonwealth University, who spoke on “What Are You Willing to Give Up in Order to Get What You Say You Want?”

In her talk, Professor Pettiford-Wates encouraged us to look at how implicit bias and/or lack of cultural awareness can become barriers to effective communication and perceptions of equality, equity and inclusion. One point she addressed was the use of songs from times of slavery in the United States. She explained that songs such as Dem Bones, Wade in the Water and Follow the Drinking Gourd were created and sung by slaves as a way to deal with their terrible plight. Today these songs have been stripped of their meaning for many people and are seen as joyful, disregarding the original intent. She explained, “Some music needs to take its place in history and not be taught to children. Not everybody can sing certain music.”

The conference workshop topics included working with children with autism, using music to mitigate adverse childhood experiences, and understanding the business end of children’s music. The conference also held several “song swap” sessions, which are opportunities for attendees to share songs they have used in teaching, sometimes songs they have written themselves. I often bring back songs from these sessions to my classes. This year the song swaps were on the themes of songs for early childhood, songs for tough topics, books on the power of creative movement.

To learn about the speakers who presented at this year’s conference, or for information on future conferences, go to the Learning & the Brain website to get information: https://www.learningandthebrain.com. During the conference it was very useful to have the Learning & the Brain app loaded on a smartphone from any app source.

Some organizations that foster compassion or empathy as part of their mission and were involved with the conference are the Center for Compassion and Altruism Research and Education at Stanford: http://ccare.stanford.edu/about/people/ccare-staff/, and Greater Good in Action at UC Berkeley: https://ggia.berkeley.edu.

BOOKS TO READ TO CHILDREN

Jonathan and His Mommy by Irene Small. In this story, a little boy and his mommy explore their neighborhood by walking in a variety of new and different ways. Read the book, and then see if you and your child can walk the same way they did: giant steps, crisscross steps, reggae steps and more.

Giraffes Can’t Dance by Giles Andreae. In this inspiring book for young and old alike, Gerald the giraffe wants to dance—but with thin legs and knobby knees, it’s harder than you would think. All the other animals laugh at him. It is not until he meets an unlikely friend, who helps him find his own special tune, that Gerald is finally able to dance.

Follow the Drinking Gourd

The conference workshop topics included working with children with autism, using music to mitigate adverse childhood experiences, and understanding the business end of children’s music. The conference also held several “song swap” sessions, which are opportunities for attendees to share songs they have used in teaching, sometimes songs they have written themselves. I often bring back songs from these sessions to my classes. This year the song swaps were on the themes of songs for early childhood, songs for tough topics, books on the power of creative movement.

To learn about the speakers who presented at this year’s conference, or for information on future conferences, go to the Learning & the Brain website to get information: https://www.learningandthebrain.com. During the conference it was very useful to have the Learning & the Brain app loaded on a smartphone from any app source.

Some organizations that foster compassion or empathy as part of their mission and were involved with the conference are the Center for Compassion and Altruism Research and Education at Stanford: http://ccare.stanford.edu/about/people/ccare-staff/, and Greater Good in Action at UC Berkeley: https://ggia.berkeley.edu.

BOOKS TO READ TO CHILDREN

Jonathan and His Mommy by Irene Small. In this story, a little boy and his mommy explore their neighborhood by walking in a variety of new and different ways. Read the book, and then see if you and your child can walk the same way they did: giant steps, crisscross steps, reggae steps and more.

Giraffes Can’t Dance by Giles Andreae. In this inspiring book for young and old alike, Gerald the giraffe wants to dance—but with thin legs and knobby knees, it’s harder than you would think. All the other animals laugh at him. It is not until he meets an unlikely friend, who helps him find his own special tune, that Gerald is finally able to dance.

Follow the Drinking Gourd
The Bing Times

The Power of Creative Movement

On Sunday morning, I presented my creative movement workshop to a room full of music teachers. Most music teachers incorporate movement into their teaching, but they usually direct the children to move in set ways. I have always believed that, for children under 5, it is developmentally most appropriate to provide them with opportunities to explore and discover the many ways their bodies move naturally—before introducing them to set forms of movement such as ballet, jazz or tap.

Therefore, my workshop focused on how to work with children so that they feel comfortable to explore using their bodies in different ways. We began by taking off our shoes: Moving this way helps the participant to feel better balanced and connect more directly with the ground. Then I directed everyone to find their own “bubble space”: This means finding a place to stand where you can spread your arms wide without touching any other person or furniture. We pretended to pull a bubble from the ground up over our head and then fill it with air by blowing it up. We were then inside that bubble. Next, I directed the participants to feel the walls of the bubble with different parts of their body (for example, hands, feet, back and head). Once we were aware of our bubble, also known as our personal space, we began an exercise known as the BrainDance.

The BrainDance is an exercise developed by Anne Green Gilbert, and is a series of eight movements that recall the movements we all did during our first year of life. In her book *Creative Dance for All Ages*, Gilbert states that doing these movements at any age “has been found to be beneficial in oxygenating the brain, reorganizing the central nervous system, and enhancing core support and alignment.” In my own teaching, I have found that it has proven to aid children in calming down and being able to refocus, as well as warming up their bodies, increasing flexibility, and opening them up to new ways of moving their bodies—and just to be a very fun activity for children and adults alike. After dancing within our personal bubbles, we began moving through the group’s shared space with a variety of other exercises. These may seem like simple exercises, but they’re important, because recognizing one’s own bubble/personal space—and being

---

**MOVEMENT ACTIVITIES FOR PARENTS AND CHILDREN TO DO TOGETHER**

**Use your body parts:** Can you dance using only your arms, or legs, or head? Can you move your back like a snake? Let one body part lead you around the room (for example, one arm or leg, your bottom, or nose).

**Move through space:** Move with big motions, small motions. Go forward, backward, sideways.

**Shapes:** Form a shape with your whole body, then change it, and change it again. Try moving or walking as that shape.

**Moving with the ABCs:** Try this challenge

| A | Act like a cat |
| B | Bend at the knees |
| C | Chair pose |
| D | Dance |
| E | Elephant steps |
| F | Fly like a bird |
| G | Gallop |
| H | Hop |
| I | Itsy-bitsy steps |
| J | Jump |
| K | Kick |
| L | Leg lifts |
| M | March |
| N | Noisy steps |
| O | Open and shut arms |
| P | Pop up |
| Q | Quiet steps |
| R | Run |
| S | Spin and turn high and low |
| T | Twist |
| U | Under someone’s legs |
| V | Vigorously move arms and legs |
| W | Wiggle |
| X | Mark “X” with your body; shrink it and grow it |
| Y | Yoga |
| Z | Zigzag steps |
able to carry that into group space—can help children navigate through life.

**The Magic Penny Award**

Directly after the morning workshop, it was time for The Magic Penny Award. Each year a committee of CMN members chooses an individual or group within our community who has demonstrated a lifetime of great achievement in the field of children’s music. This year the Magic Penny Award was presented to the duo Kim and Reggie Harris, who have used their creativity, deep knowledge and beautiful voices for over 30 years to teach and inspire generations of children and adults to understand our past and what it means for us today. This year’s presentation was one of the most beautiful and meaningful in recent memory. The ceremony began with CMN members performing a few of their favorites from the duo’s past works. Then it was time for our honored recipients to take to the stage and share some of their incredible repertoire of African-American music that mixes old and new freedom songs and spirituals, many of which Professor Pettiford-Wates had referred to.

After lunch was the closing session, filled with more music, singing, laughter and fond farewells till next year. It was a wonderful weekend, and I returned to Bing energized with new ideas and songs. My first day back, I taught David Burba’s *A Song About Friends*, which uses names of the children in the class. The children really enjoyed hearing their name, and then singing the song using a friend’s name.

---

**EVENTS AND INFORMATION**

**Kindergarten Information Night 2019**

By Allison Hulme, Teacher

Each year at the start of winter quarter, Bing Nursery School holds Kindergarten Information Night, a gathering for parents to learn about what to expect as children move beyond nursery school. The 2019 event, held Jan. 16, had guest speakers including Mary Bussmann, principal at Walter Hays Elementary School, and her husband, pediatrician Rick Lloyd. More than 80 parents of future kindergarteners gathered to be supported and informed of expectations during this time of transition.

Adrienne Lomangino, head teacher, shared a survey showing the experience of children’s transition from Bing to kindergarten. The survey, conducted in the fall of 2018, included data on 100 children—53 boys and 47 girls—69 of whom attended a public school, and 31 of whom attended private. The results indicated that most children were excited before entering kindergarten in the fall of 2018. Children who were reluctant at the start adjusted quickly. By October, nearly two months into kindergarten, 92 percent were feeling better than neutral. Parents shared how their children’s experiences at Bing had positively influenced this transition: The school’s emphasis on fostering social skills—such as entering play, navigating conflicts and building relationships—helped children follow through with both children and adults.

Lloyd began by discussing developmental milestones for 5-year-old children, which include self-help: toileting, washing and fastening buttons on clothing. Children at age 5 should be able to label their feelings and express needs like hunger or tiredness when they are hungry or tired, he said. Their vocabulary should include around 3,000 words. Lloyd described 5-year-olds as “delightful.” At this stage of life, children have a strong desire to please others. Their mother, or main caregiver, remains the center of their world. Children have an ethical sense and desire to do what is right. He continued by describing the importance of adult influence in a child’s life. If the adult is a good model, showing charity and kindness, the child will exhibit these qualities as well.

The age of 5 is a special time, said Lloyd, when children still believe in magic. Young children enjoy trickery, and parents would do well not to spoil the magic of Santa Claus or other fantasy characters.

---

A rainbow. By Lara E., 3 years 7 months

That’s a snake, too. See? By Duke F., 3 years 5 months

By Helun T., 4 years 11 months
Lloyd concluded with two key takeaways. First, do not be disappointed in your child, because your perceptions are a factor in your child’s life. So think of the attributes children possess, rather than those you have tried to cultivate for them. Love them for who they are, not for what they do.

Second, be mindful of cell phone use, and don’t let it displace parent interaction. Lloyd referenced a book by B. Annye Rothenberg titled *Mom and Dad Are Always So Busy*, discussing parents and technology use. Phones and other electronics such as tablets are a common distraction for both children and adults. Their use can interfere with learning social cues and skills when it reduces time spent interacting directly with people, in part because subtleties like facial expressions and gestures conveyed in face-to-face communication are lacking.

Next, Bussmann spoke about the different programs Walter Hays offers children to enable them to thrive in every area. Inclusion programs are in place to foster social-emotional growth, as well as a sense that everyone is special and important. This helps children to feel safe and included and to resolve conflicts. “When children make a mistake or misbehave, I want to work it out with them and be on their team,” she says. Her goal is to make sure they are heard and are seen in a positive light.

Bussmann concluded with suggestions for ways parents can help their children through life. Parents have only 18 years of influence with their children, who will benefit from their parents’ age-appropriate expectations, boundaries, guidelines and values. Among her recommendations: Teach children how to resolve conflict and to build relationships with peers. Involve children in problem-solving—for example, ask a child, “How many plates will we need to set the table for dinner?” Encourage optimism and resilience. Children should know that tomorrow is a new day, she said. View mistakes as an opportune time to teach and instill in your child the desire to learn and do better next time. Most importantly, get to know your children. Take time every day to look into their eyes and listen to them, cuddle with them and read to them with an expressive voice.

To finish the night, head teachers Todd Erickson, Peckie Peters and Nandini Bhattacharjya shared additional tips to help parents and children successfully navigate transitions, a valuable skill for young and old. As the time in nursery school ends and kindergarten begins, parents should expect meltdowns at home. To reduce them, they suggested parents take time to connect with children whenever possible. Spending quality one-on-one time with the parent’s full attention can go a long way for a child. To support children as they leave friendships from Bing behind, parents can remind children of the feelings of friendship and how they made connections in the past. Having playdates with previous friends can help, as well as scheduling time to play with family and new friends at the school playground to gain familiarity.

Erickson emphasized the importance of the perspective and attitude of the parent: Be optimistic about this transition. “You are the experts of your own children. We live in a world of experts on every subject, but you are the expert of your child. Don’t let anyone take that away from you.”

**EDUCATORS’ VISIT TO BING**

Bing was a demonstration site during the 2019 annual conference for the California Association for the Education of Young Children and hosted two groups of early childhood administrators and educators. More than 90 visitors toured the school on April 13, 2019.
Beloved ‘Teacher Peckie’ Wins Stanford’s 2019 Amy J. Blue Award
By Kathleen Sullivan

Editor’s note: This article was published by Stanford News on April 25, 2019, and is printed with permission from Stanford News. Peckie Peters retired in June 2019.

At Bing Nursery School, children are “honored guests,” welcomed by devoted teachers and invited to play inside light-filled classrooms or outside on a sprawling terrain of hills with rabbit hutchies, fruit trees and play structures—independently, with friends, or with a teacher.

One of those teachers is Mary-Peck “Peckie” Peters, a 2019 recipient of an Amy J. Blue Award which honors staff members who are exceptionally dedicated, supportive of colleagues and passionate about their work.

Peters, a head teacher at the school, is committed to the mission of the Bing Nursery School, a program within the School of Humanities and Sciences. The school’s goal is to promote an understanding of child development and improve the lives of young children by providing a setting for research; teaching undergraduate students through seminars, observations and hands-on experiences; providing an exemplary program of play-based, child-centered education; and engaging parents and educators to promote best practices.

“It’s a nice framework, because you don’t give your honored guests everything they want, you try to help them maximize their experience,” said Peters, who goes by the childhood nickname “Peckie” among friends and colleagues, and “Teacher Peckie” among honored guests and their parents. She joined the school in 2000.

“She is beloved in our community, not only by her colleagues, but most notably by the children and families whose lives she touches in deep and meaningful ways,” one colleague wrote. “I have heard parents describe Teacher Peckie as magical, amazing, incredible, invaluable—the list goes on. She puts her whole heart and soul into her calling as an early childhood educator.”

Another person wrote, “Children flock to her and she respects them as competent, capable human beings.”

“Put simply, Peckie is magical,” another said. “I have often observed her interactions with children and wondered, ‘how on earth does she do that,’ whether it was resolving a conflict between 4-year-olds or coaxing a remarkable story about pirates and monsters out of a previously reserved child. Peckie approaches her life and her work with openness and curiosity, always looking toward the positive and valuing strengths over deficits.”

Peters is one of three Stanford employees recently named 2019 Amy J. Blue Award winners. The other recipients are Laura Dominguez Chan, associate dean of career education and director of career communities at Stanford Career Education, and Heidi Marisol López, finance assistant and graduate fellowship coordinator at the Center for Comparative Studies in Race and Ethnicity.
Oh, I do know how to write words!

Peters, who earned a bachelor’s degree in human biology at Stanford, earned a master’s degree in special education at Boston University. Before returning to the Farm, she taught kindergarten in Vale, Colorado.

She said her days are filled with rewarding moments generated by children, as in a recent conversation with a 4-year-old girl who had just finished drawing a picture of a girl.

“Do you know that I don’t know how to write words?” the girl said.
“I didn’t know that,” Peters replied.
“Now I guess I do.”
“So now I don’t know what to do,” the girl said.
“Are you trying to write some words now?” Peters said.
“Yes,” the girl replied, stopping to ponder the situation.
“Were you thinking you wanted to write a word about her?” Peters said, pointing to the drawing.
“Yes,” the girl said, and then began writing letters—P, H, I, L, T, R.

“Is that her name, Philtr?”
“Yes. Oh! I do know how to write words.”
“You do know how to write words and now we’re both surprised, because you didn’t know you could write words and I didn’t know you could write words, and you just started writing and you made this word.”
“Well, I do practice at home—this much,” the girl said, extending her arms wide.

Mentor to teachers, advocate for children

At Bing, Peters serves as the head teacher in two classrooms—one for 2-year-old children, and another for 3- to 5-year-olds.

“As a head teacher, Peckie consistently and simultaneously presents herself as an equal team member, a mentor, a cheerleader and a friend,” a colleague wrote in a nomination letter. “She comes in early and stays late, taking on extra work to be sure that no burden falls on anyone else. She supports what teachers are passionate about, guides them to improve their skills and encourages them to achieve their personal best.”

Jennifer Winters, director of Bing Nursery School and a lecturer in the Department of Psychology, said Peters often receives end-of-quarter ovations from students enrolled in “Development of Early Childhood,” a seminar Peters has co-taught at the nursery school.

“Peckie is a strong advocate for all children and passionate in her conviction that early childhood teachers can make a difference that will last a lifetime for a young child,” Winters wrote. “She has a way of intently listening and being present that helps calm even the most distraught child. Her compassion and support for children with special needs is boundless. She is willing to do whatever it takes to help a child and their family receive the support they need in and out of the classroom.”

The awards were established in memory of Amy J. Blue, an associate vice president for administrative services and facilities who died of brain cancer in May 1988. The awards are accompanied by a $4,000 prize.
The Play-Based Carpenter: Gene Aiken’s Gift to Bing
By Holly Finn, Bing parent

White containers on the top shelf are labeled Rope, Simpson Brackets, Irrigation. Near one wall there’s a drill press, near another a miter saw. There are wrenches and earmuffs and vises and masks. Over everything is a fine layer of soft sawdust. Welcome to the workshop of Gene Aiken, Bing’s one and only “Facilities and Resource Coordinator”—or carpenter. “A carpenter for a nursery school?” people ask. “Really?” Really.

There are many perks of being a child at Bing, but this may be the greatest: Things just appear, like magic. This autumn, around the boat in East Room, a dock suddenly materialized. Children can now board by stepping up from the sea of grass and disembark onto the land of the nearby pathway. “You want to draw the kids in,” says Gene, who designed and built the dock. “So now, even if you’re not a great climber, you can get in the boat from every direction. Except the front—it still has to look like a boat.”

Gene chops those hundreds of wood squares and diamonds that our children glue, paint and nail—but also, like the children, constantly taps into his imagination. In West Room, the wooden train he made is so convincingly crafted you expect to hear the puff-puff of a steam engine any minute. The base of a basketball hoop isn’t just heavy and safe, it’s decorated with a wood overlay of the Stanford tree. Such details, like the beautifully undulating slits letting light into an East Room playhouse, are both unnecessary and essential.

These unexpected touches are one more way Bing tells our children they are worth the extra effort, from the very start. The West Room “hobbit house” Gene built last summer, for example, could have had a standard roof and four walls and been just fine. Instead, from its curved roof bursting with succulents to its arched door and circular outdoor deck, it could easily be a fashionable mini-home featured in next month’s Architectural Digest.

After seven years at Bing, Gene keeps adding to the life of this place. His works prioritize function and flourish, both—and blend in immediately, helping the grounds look and feel kind of heavenly, a Valhalla for the Very Small. He says he’s glad his work can help children develop in these important early years. But his creative carpentry does something else, too: It gives our little ones the message, consciously or not, that the world around them doesn’t have to be workaday. It can be extraordinary, and so can they.

Gene really outdoes himself at auction time. His two daughters went to Bing, and he feels lucky both to give back to the school that gave his girls so much and to have the freedom to be artistic. Two years ago, he made a gelato cart that went for $12,500. Three years ago, for “Through the Looking Glass,” he offered up a clock-themed table and chairs ($10,000). This year he’s making a treasure chest—which is more complicated than you’d think, with its angled sides, classic curved top, and, just perhaps, a pirate-proof lock. “My goal with the auction item is to create a one-of-a-kind,” says Gene. He pushes the difficulty level every year, adding intricate details. “I put a lot of pressure on myself—probably too much!—to create something great and memorable.”

Gene’s mother was a violinist, his grandmother assembled vacuum tubes, and his father was handy, too. They’ve been San Carlos natives for decades. It’s a different Silicon Valley today, of course, where we live so much by our wits, profiting from mental prowess above (almost) all. So it’s good to be reminded—and maybe to remind our children—that there’s another kind of gifted: being able to make something with your own hands.
The sixth season of the performance series featured two performances at Stanford’s Dinkelspiel Auditorium: a children’s concert with the Stanford Symphony Orchestra and the Fratello Marionettes on Nov. 3, 2018, and a jazz concert featuring Jim Nadel and the Zookeepers on March 2, 2019. The series aims to introduce young children to the performing arts. These early experiences open children’s minds, expand their knowledge of different cultures through music and dance and set the stage for a lifelong appreciation of the arts. Bing teachers and staff also hold informal concerts in the school atrium throughout the year to bring the classrooms together for group singing experiences.
This year’s Bing Nursery School children’s fair was a success, with over 500 families of Bing children—current and alumni—taking part, despite the rain. During the event, held at the school Sunday, May 19, 2019, the attendees enjoyed activity and craft booths as well as entertainment, which included live music featuring Bing teacher Todd Erickson and Bing parent David Kaufman and a puppet show staged by Magical Moonshine Theatre. The incomparable Leland Stanford Junior University Marching Band closed the fair and was a huge hit with children and adults.

Over 200 parents prepared goods for the bake sale and the food booths. Cupcakes, brownies and sweets of all kinds were popular, and nobody could pass up the delicious variety of food, from penne alfredo to Chinese chicken salad to bean and cheese burritos. It was a record-breaking year for donations from businesses that donated food and gift cards and volunteers to help staff the fair, as well as from Bing families, who sponsored the fair with cash donations. Special thanks to our many generous donors: Amy J. Voedisch & Nader Ali Mousavi, April Bosworth, Asian Box Street Food, Bird Dog, Buca di Beppo, Celia’s Mexican Restaurant, Chef Chu’s, Chitradevi Ramaswami and Kumar Kittusamy, Christina & Jay Kang, Costco, Courtney and Adam Alberti, Emily Lopez, Gerry’s Cakes, Grocery Outlet Bargain Market, La Baguette, Little Bytes Pediatric Dentistry/Michelle Haghpanah, Lulu’s, Marita and Zubin Irani, May and Florin Ratiu, Mademoiselle Colette, Nicole Vartkessian, Peet’s Coffee & Tea, Pizza My Heart, Priyanka Goel-Chandrasekar and Chaitanya Chandrasekar, Safeway, Sigona’s Farmers Market, Sophie Rahn, Starbucks, SusieCakes, TaskRabbit, Tendergreens, The Graceful Cookie, The Market at Edgewood, Tin Pot Creamery, Trader Joe’s, True Foods Kitchen, Victoria Ransom and Alain Chuard, and many Stanford sororities and fraternities.

On the morning of the fair, approximately 200 alumni families joined the Bing staff for breakfast. It was wonderful to see and talk with so many alumni children, as well as their parents, some of whom are Bing alumni themselves.

We would like to thank our Bing Fair co-chairs, Cindy Dodd, Emily Lopez, Alice Siu and Nicole Vartkessian, for organizing a beautiful fair, as well as the over 300 parent volunteers who staffed the activity and food booths this year. Proceeds from the fair benefit the Bing Nursery School Scholarship Fund.
On Dec. 1, 2018, love was in the air at the 30th annual Bing Harvest Moon Auction, centered around a theme inspired by the Beatles song “All You Need Is Love.” Guests arrived in their tie-dyed outfits, with flowers in their hair, music in their ears and giving in their hearts. The annual fundraising event raised over $340,000 for the Bing Scholarship Fund, which provides financial assistance to over 20 percent of the children who attend Bing. As in past years, Helen and Peter Bing were strong supporters, with a generous gift of $50,000.

A vintage yellow VW bus and a yellow submarine standee near the entrance set the tone, as did colorful decorations depicting peace signs, flowers and iconic Beatles songs such as Strawberry Fields, Penny Lane, Magical Mystery Tour and Here Comes the Sun.

Guests enjoyed the cocktail “Rumin’ Lovin’,” made specially for our event. The food, catered again this year by Weir Catering, was tailored to our theme, with such selections as “I Am the Eggman,” “Here Comes the Soup,” and “Let it Brie.” Tin Pot Creamery and Konditorei donated dessert and coffee for the evening. Bing parents AJ and Amber Tennant donated additional desserts as well as wine for the evening. Business sponsors we would like to thank include Grgich Hills Estate, Hengehold Trucks and TaskRabbit. Our generous family sponsors for the evening were Marita and Zubin Irani, The Xu Family Foundation, The Carobus Family, Marissa Mayer and Zachary Bogue, the Acton Family, Shamin and Simon Tong, Ayla Christman and Emlen Fischer, and Charlotte and Peter Deng. Businesses that advertised in our auction catalog included Service by Medallion, Ladera Garden and Gifts, CuriOdyssey, Better Chinese LLC, Kate Matin DDS, Little Bytes Pediatric Dentistry and The Village Doctor.

Over 500 items were up for bid at the silent auction, and over 100 items were sold through our online auction. Bing head teachers Todd Erickson and Peckie Peters dressed in ‘60s attire and took the stage as MCs and auctioneers for the live auction, which raised over $52,000. Live auction items included VIP tickets for the Beatles “Love” Cirque du Soleil show in Las Vegas, two VIP floor seats at a Warriors game, and story time with teacher Todd, which raised an incredible $32,000 for the auction (for two story times that sold for $16,000 each). Bing’s own carpenter, Gene Aiken, and head teacher Jeanne Zuech collaborated to build an amazing book crate that included over 50 books donated by Bing teachers and staff. The ever-popular Fund a Scholarship, a live bidding item with straight cash donations going directly to the Bing Scholarship Fund, raised over $50,000 that evening, with an additional $145,000 raised prior to the auction.

More than 35 events for children, families and adults were also auctioned off, including a visit to the CuriOdyssey science playground and zoo, an adult ’80s dance party, a bread baking party with Bing teachers, dad’s poker night, a Game of Thrones final season premiere watch party, and the Bing campout. We appreciate the work and donations of parents in each classroom who put together over 60 class baskets.

A big thank-you to our parent auction co-chairs, Melissa Miranda and Arturo Pereyra, for their vision, leadership, creativity and dedication. We couldn’t have done it without them. We also would like to thank former Bing parent Sam Brin, who began the process with us as our third parent auction co-chair and helped form our theme. We are also extremely grateful to our many parent volunteers, who worked on over 20 committees, our auction donors and attendees, and Bing teachers and staff for making the auction a tremendous success!

We hope to see everyone again at this year’s auction on Saturday, Nov. 9, 2019.
Ahoy! Join the crew and search for treasure at

**Bing Nursery School’s**

**31st Annual Harvest Moon Auction**

**Treasure Island**

**SATURDAY, NOVEMBER 9th, 2019, 6:30 pm**

Chart your course for the
Frances C. Arrillaga Alumni Center
326 Galvez Street, Stanford University

Yer ticket gets ye gourmet grub and grog!
Excitin’ silent and live auction items include a condo in Costa Rica for one week, SF Helicopters Vista Tour, jewelry treasures, exceptional wines, sports tickets and experiences, and many unique one-of-a-kind donations from our Bing teachers and staff.

Please visit us at bingschool.stanford.edu/hm for reservations and more information, or contact us at harvestmoon@stanford.edu, 650-723-4865

All proceeds benefit the Bing Nursery School Scholarship Fund.

_Yo, ho, yo, ho, let's celebrate the Treasure of Bing!_

_Stephanie Holson, Arturo Pereyra & Siddhartha Singh_

_Bing Harvest Moon Auction 2019 Co-Chairs_

Bing Nursery School, 850 Escondido Road
Stanford University, Stanford, CA 94305