



LEAP Into School!™



Language Enrichment Activities for Preschool

Research Supporting the Pre-School Curriculum of LEAP Into School!™



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Creating Products That Encourage Enthusiastic Learning!



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LEAP Into School!™ is a research-based, multi-disciplinary curriculum that prepares children for kindergarten. Designed specifically for young children aged 3–5, LEAP Into School!™ supports preschoolers in the areas of language acquisition, pre-literacy, mathematics, science, social studies, fine and gross motor skills, and social and emotional development training.

LEAP Into School!™ uses research-based instructional practices that can be organized into three broad areas: literacy, numeracy, and science and social studies concepts. The research studies and subsequent instructional recommendations in these content areas form the basis for the program's pedagogy. The results can be measured and replicated (see report on the program efficacy of LEAP's earlier version).

Literacy

The 2008 Report of the National Early Literacy Panel (NELP), a meta-analysis of research studies, identifies six preschool skills that strongly predict later reading success:

- alphabet knowledge (the knowledge of the names and sounds of printed letters)
- phonological awareness (the ability to detect, manipulate, or analyze spoken language, including the ability to distinguish or segment syllables or phonemes independent of meaning)
- rapid automatic naming of a sequence of letters or digits
- rapid automatic naming of a sequence of pictures of objects or colors
- writing letters in isolation when requested to do so or writing one's own name
- remembering spoken information for a brief period of time

Of these six skills, only alphabet knowledge, phonological awareness, and writing letters or writing one's own name can be taught. Rapid letter naming and remembering spoken information for a brief period of time are skills that cannot be taught, although they can be measured.

In the same report, NELP identifies four skills that, although only low or moderate predictors of reading success, are still valuable skills for preschoolers:

- concepts of print (knowledge of print conventions, such as front-back, left to right, and concepts of book cover, text, author)

- print knowledge (a combination of alphabetic knowledge, concepts of print, and early decoding)
- oral language (the ability to produce or comprehend spoken language, including vocabulary and grammar)
- visual processing (the ability to match or discriminate visually presented symbols)

Concepts of print is correlated with success in decoding, reading comprehension, and spelling. Print knowledge is correlated only with success in reading comprehension. Visual processing is correlated with spelling, although more complex facets of oral language such as grammar and knowing the meaning of words correlates more with literacy success than simple oral language skills.

LEAP Into School!™ integrates the NELP top six recommended skills into its Alphabet Knowledge, Phonological Awareness, and Oral Language and Vocabulary strands. Weekly Alphabet Knowledge instruction in these strands includes letter instruction, such as learning letter names, sounds, and writing. Phonological Awareness instruction includes learning to identify sounds in words, blend syllables or sounds to form words, and segmenting words to syllables and sounds. The Oral Language and Vocabulary instruction includes understanding and using age-appropriate vocabulary and appropriate grammar. The Beginning Reading strand introduces listening, sequencing, and other critical comprehension skills. Finally, the Beginning Reading strand presents concepts of print through the use of a rich library of literature.

Instruction that benefits reading success

The meta-analyses for NELP (2008) identify three types of instruction that prepare children for later reading success. These three types of instruction contribute to preschoolers developing alphabetic knowledge, phonological awareness, print knowledge, oral language skills.

Instruction that focuses on helping children break the alphabetic code (code-focused instruction) combined with instruction in phonological awareness positively benefits children’s conventional literacy skills (e.g., decoding, writing, spelling).

- Book-sharing (interactive reading) benefits children’s print knowledge and oral language skills.
- Language enhancement instruction increases children’s oral language skills.
- Although more research is needed, in general, these types of programs appear to benefit all children regardless of socio-economic status or early language abilities. However, the benefit appears to be greater for children with normal language abilities than for children with lower language abilities (NELP, 2008).

In addition to the skills mentioned earlier, LEAP Into School!™ focuses on literacy, science, and social studies and utilizes NELP's three types of instruction. The program includes code-focused instruction combined with instruction in phonological awareness, book-sharing, and language enhancement. Each week includes at least two books in read-aloud and dramatic play activities where children learn new letters, letter sounds, and letter writing skills. Finally, the oral language and vocabulary activities enhance children's language skills on a daily basis, addressing all of the findings of NELP (2008).

In the following three sections, we discuss the research evidence for code-focused instruction that includes instruction in phonological awareness, book-sharing, and language-enhancement instruction. Following the discussion of the research evidence, we present how we apply the research in LEAP Into School!™

Code-focused instruction and instruction in phonological awareness

Code-focused instruction occurs informally and formally throughout the program. Learning to recognize one's own name promotes letter learning in three-year-olds (Bloodgood, cited in Ehri & Roberts, 2006). Additionally, pre-readers know the names of and can write the initial letters in their own names better than they know and can write other letters. However, children who recognized their own names did not know the sounds of the initial letters in their names any better than the sounds for letters not appearing in their names (Treiman & Broderick, cited in Ehri & Roberts, 2006). LEAP Into School!™ includes robust instruction to help children recognize their own names and to learn initial letter sounds. In the program, children have many opportunities to identify the letters in their own names, recognize their names, and pretend-write their own names and other words.

Research also suggests that another way that children appear to informally acquire interest in letters is through environmental print and recognizing logos. However, this recognition of environmental print does not appear to transfer to knowledge of letters (NELP, 2008). Research indicates that more formal instruction is needed to help children transfer their recognition of environmental print and logos to knowledge of letters (e.g., Neuman, Hood, & Ford, 2013) or to a recognition of words without a logo (Cronin, Farrell, & Delaney, 1999). Teachers using LEAP Into School!™ have many opportunities to use environmental print to interest children in print and then to use formal instruction to transfer children's recognition of environmental print to knowledge of letter names and sounds.

Formal alphabetic code-focused instruction includes teaching children the names of letters and their shapes through writing the letters. Teaching children the most efficient way to write the letters, where to begin, and the strokes to use is more efficient than letting children devise their own ways to write. Code-focused instruction also includes teaching the sounds the letters stand for. Children need to overlearn the names and sounds of letters so they can be fast and automatic at

processing letters. Practice includes writing their own names, reading the names of classmates, inventing spellings to label objects, writing words by listening for letter names (when words such as *bee* and *ape* are pronounced), and fingerpoint reading of familiar text to help children transfer their knowledge of letter names and sounds to reading and writing (Ehri & Roberts, 2006). Knowing letter names first appears to help children learn the sounds the letters stand for (Ehri; Share; Treiman & Broderick, cited in Ehri & Roberts) because sounds are less distinctive and harder to hear than letter names (Treiman & Kessler, cited in Ehri & Roberts).

In LEAP Into School!™, children receive formal instruction in the names, shapes, and sounds of uppercase and lowercase letters. Teachers model writing the shapes, naming the strokes as they write. At first, children airwrite letters following teachers' verbal instructions. Later, children practice actual writing of the letters, naming the strokes as they write, and practice writing using the LEAP Into School!™ Letters and Numbers App. Children also have multiple opportunities to pretend-write, invent spellings for objects, and fingerpoint-read. Additionally, the letter instruction in the program includes teacher modeling and describing mouth shapes as children pronounce the sounds for newly learned letters.

Research provides evidence that effective phonological awareness instruction in preschool is generally the same as research-based kindergarten instruction (NELP, 2008). Although segmenting words to phonemes (sounds) has the strongest effect on later reading success, instruction in phonological awareness should include a range of skills, including rhyming, identification, blending, and segmenting. Instruction should follow a continuum of easy-to-difficult skills and include sound levels of syllables, onset-rime, and phonemes (NELP). Segmenting words to phonemes is one of the more difficult phonological awareness skills; however, preschool children have successfully learned to segment words to phonemes (Hesketh, 2007; Yeh, 2003).

The LEAP Into School!™ program scaffolds instruction in phonological awareness instruction to advance from larger (words and syllables) to smaller (onset-rime and phonemes) sound units and from easier (e.g., identification of initial sounds), to more difficult (e.g., blending, segmenting) skills. The teacher models new phonological awareness skills and provides ample practice opportunities for children. The teacher makes sounds more concrete by using our own "tapping" process, combining words or word segments and kinesthetic procedures such as tapping wrists, arms, and shoulders in a consistent sequence.

Book sharing

Research evidence indicates that book sharing, also referred to as interactive reading, fosters development of language, vocabulary, world knowledge, and print-based skills (e.g., Dickinson, Golinkoff, & Hirsch-Pasek, 2010; Schnickedanz & McGee, 2010). Reading aloud to children exposes them to rich language that goes far beyond the functional language of everyday interactions (Bravo et al., 2007). Book-sharing that increases vocabulary includes rereading favorite

storybooks (Robbins & Ehri, 1994; Senechal, 1997), repeated reading that includes questioning, (Senechal, Thomas, & Monker, 1995) and dialogic reading, reading in which the child assumes the role of storyteller (Hargrave & Senechal, 2000; Whitehurst et al., 1994). Retelling a science informational book also increases word learning (Leung, 2007).

Skillful book sharing is engaging to children and sets the stage for the motivation and attention needed to acquire new words (Bloom, 2000). This language support is critical for children who are at risk of reading difficulty (Biemiller & Boote, 2006). Interactions between teachers and children are needed to occur before, during, and after reading. Lengthy interactions are best suited to before or after reading and should include discussions of the story, pictures, words, and letters. Discussions should also prompt children to talk about their responses to the text and their connections or experiences that relate to the text. The interactions that occur during reading are related to improved learning outcomes (Brabham & Lynch-Brown, 2002). Strategic interactions significantly improve children's expressive and receptive vocabularies. These strategic interactions include predicting, questioning, recalling, reinforcing, and replying to children's questions (Wasik, Bond, & Hindman, 2006).

Book-sharing can also be used to teach book and print awareness, two skills related to later reading success (Morris, Bloodgood, & Perney, 2003) and to develop book conventions such as forms, features, and functions of print (Lonigan & Whitehurst, 1998).

LEAP Into School!™ applies this research evidence effectively. Our literature kit includes nearly 80 books and a robust read-aloud instructional strand. Based on the research evidence that retelling science informational text increases vocabulary, we include a large assortment of informational texts (science and social studies). Teachers use discussion guides that focus before, during, and after reading instruction. Discussion is scaffolded to introduce children to easier and then more difficult concepts about print, books, the features of narrative stories (e.g., setting, characters), and the features of informational text. Children have opportunities to respond to the text (e.g., identify parts of the text they like) and to relate the text to their own experiences. During small group time, children have opportunities to reread or retell the story to each other or to engage in dramatic play based on the story.

Language enhancement instruction

Language enhancement instruction increases children's oral language skills, including receptive and expressive language and grammar. Classroom environments that support language enhancement instruction are "print rich," with ample opportunities to use books, environmental print, and labels. Research evidence indicates that when teachers intentionally model language and encourage conversation during routine activities, children's language knowledge and use increases (Wasik, Bond, & Hindman, 2006). LEAP Into School!™ provides a print-rich environment, with ample opportunities for children to use and discuss books, environmental print, and labels. Whole group,

small group, and center activities are designed to encourage conversation among the children and between the children and their teachers. Social and emotional development activities also promote self-reflective thinking and discussion around themes such as proper behavior toward classmates, asking adults and classmates for assistance, and responsibility around hygiene and health.

Vocabulary

Children’s understanding of word meaning is a significant predictor of later reading comprehension achievement (Senechal et al., 2006). Converging research evidence supports explicit vocabulary instruction embedded with story reading that provides definitions of words, opportunities to identify and produce words, activities that are connected to words, and multiple contexts within and outside stories that contain vocabulary words (e.g., Beck & McKeown, 2007; Coyne, McCoach, & Kapp, 2007; Simmons, Kame’enui, & Stoolmiller, 2004; Justice et al., 2005; Penno, Wilkinson, & Moore, 2002; Pullen, Tuckwiller, Konold, Maynard, & Coyne, 2010). When word exposure is extended beyond the storybook setting and incorporated into other activities such as play, children make significant strides in their word learning (Stahl, 2003). Research evidence also suggests that theme-based vocabulary instruction may improve the vocabulary of language-delayed and at-risk children (e.g. Pollard-Durodola et al., 2011).

Incorporating this research into the program, LEAP Into School!™ includes theme-based learning, during which teachers use theme-based posters and books to teach the meanings of high-utility and high-interest vocabulary words. Vocabulary posters and LEAP Into School!™ Learning Cards activities prompt children to use receptive language when teachers ask them to point to objects, learn the names, and understand their meanings. Children use expressive language when they tell their teachers more about the pictures and when they discuss the posters and vocabulary words with each other. Vocabulary instruction is also embedded in book sharing and in the discussions that occur. Finally, children are encouraged to use their new vocabulary in additional activities, such as at the art table, during dramatic play, and when drawing and writing.

Intentional language modeling

When teachers intentionally model language and encourage conversation during routine activities, children’s language knowledge and use increases. Planned discussion topics for before, during, and after reading is one way to model language and encourage conversation (e.g., Wasik, Bond, & Hindman, 2006). (See the discussion earlier on book sharing for research to support before, during, and after discussion topics.)

The LEAP Into School!™ program incorporates this research in its curriculum plan. Teachers intentionally model language, including proper use of grammar, when they use the posters to teach vocabulary. When children discuss the vocabulary posters, the teachers encourage appropriate use of language by restating the children’s words and using appropriate grammar.

Whole group, small group, and circle time are designed to encourage conversation among children and between children and their teachers. During book-sharing, before-, during-, and after-reading discussion topics are designed to encourage a variety of discussion skills from retelling, identification, inference, prediction, and evaluation.

Sociodramatic play (social pretend play)

Considerable cross-disciplinary research evidence supports the benefits of sociodramatic play in early childhood development, especially in the preschool years (Smith, 2010). Sociodramatic play facilitates development of narrative skills, which, in turn, facilitates comprehension and abstract thinking—for example, creating imaginary worlds (Nicolopoulou, 2007). When sociodramatic play includes ideas, props, and adult facilitation, language use and vocabulary increase (Levy, Wolfgang, & Koorland, 1992; Woodard, Haskins, Schaefer, & Smolen, 2004). When play incorporates new words, children make significant strides in their word learning (Stahl, 2003).

This construct is an integral part of LEAP Into School!™ Children engage in daily sociodramatic or meaningful play. Teachers facilitate a variety of play scenarios, including social and emotional lessons conducted with puppets and other props. They provide the topics, themes, and props for the dramatic play that is always based on the stories and vocabulary. The use of props, such as dress-up clothes, pretend kitchen items, or setting helps to keep children’s imaginations flowing while lessons are being learned.

Numeracy

In its 2010 report, the National Council of Teachers of Mathematics (NCTM) identifies three key areas that predict children’s future performance in mathematics: concepts of number, interpreting relationships, and reasoning within measurement and space.

Concepts of number

Several skills related to concepts of number have been identified as being important for preschool children to learn. These skills include number recognition, number sequencing, and fluency and flexibility with numbers (Clements & Sarama, 2004; Clements et al., 2008; Ginsburg & Baroody, 2003; Lee et al., 2007); number knowledge, ordinality, and quantitative reasoning (Duncan et al., 2007); and understanding equality, the relationship of numbers, and solving contextualized problems (Demby, 1997; Lee & Wheeler, 1989; Slavit, 1999; Van Amerom, 2003). Young children are capable of using properties of operations (e.g., the commutative or changing the order of the numbers when adding or multiplying inverse and identity properties) when solving arithmetic problems and naturally transferring informal knowledge of these operation properties to new

situations (Hiebert & Carpenter, 1992). The order of development for number concepts appears to be knowledge of the stable order of numbers, followed by one-to-one correspondence, followed by understanding cardinality (Butterworth, 2004).

Children begin to build understanding of numbers by comparing and ordering numbers, including verbal counting and using counting strategies, then solving arithmetic and contextual problems with small number sets, then recognizing numbers and substituting (recognizing how many objects are in a group without counting them), and finally composing numbers (Clements & Sarama, 2008; Van de Walle, 2007).

LEAP Into School!™ has developed a robust mathematics strand including number concepts. Our mathematics strand includes daily activities that introduce number knowledge and ordinality. Instruction introduces numerals, the meaning of these numerals, and how to write them. Additionally, we introduce the relationship between numbers by having learners count objects, compare quantities, and even solve basic problems using small number sets.

Interpreting relationships

Research evidence indicates that teachers effectively help children develop the concept of one-to-one correspondence when they encourage children to physically place, then point to, and touch each object as they count it. This form of gesturing focuses the child's attention on individual items, aiding in segmentation and reducing working memory demands of counting (Sweller, 1994), provides an external representation of the child's position in the sequence of counting (Clements & Samara, 2007), and helps children to maintain correspondence and coordinate number words with counted objects at a greater rate of success (Alibali & DiRusso, 1999). LEAP Into School!™ employs these proven strategies in its counting activities. Teachers model and children practice one-to-one correspondence using tactile-kinesthetic elements including counters, toys, and other manipulatives, verbal counting, and touching as they count.

Measurement and space

Research evidence shows that preschool children need to understand that weight, area, length, and time are used for measurement. Sometimes we measure qualitatively, using words such as *longer*, *taller*, or *heavier*. We also measure using a number. Children learn to use informal, non-standard units of measurement, such as three blocks to compare two objects (Clements & Bright, 2003). In addition, children learn that zero is the starting position when measuring (Clements & Sarama, 2008; Van de Walle, 2007).

LEAP Into School!™ includes a comprehensive measurement strand. This strand includes instruction in comparing objects and spatial relationships. Using words, as indicated earlier, and measuring with non-standard units (for example, blocks) are done regularly throughout the program. The

program includes instruction in concepts such as weight, height, volume, temperature, and more. The Hands-On Learning Kit's resources include demonstration thermometers, volume containers, and more. Working first with teachers and then in small groups, children are provided the tools they need to explore and compare objects and amounts.

Geometry

Preschool children should learn to identify, compare, represent, decompose, and rotate shapes (Clements & Sarama, 2008; Van de Walle, 2007).

LEAP Into School!™ utilizes the research in many ways. The program includes instruction and ample practice with patterns, shapes, and identification. LEAP Into School!™ follows the research findings for sequencing instruction in daily mathematics lessons and provides ample modeling and practice for children to learn the one-to-one correspondence described in the research. To help children compare numbers and quantities, the program uses Venn diagrams, graphs, and a variety of manipulatives, such as counters and pattern blocks. These visual representations help make quantities more concrete for children.

Science and Social Studies

Research finds that science education in early childhood supports children's cognitive and social development (Eshach; Eshach & Fried; Kallery & Psillos, cited in Sackes, Trundle, & Flevaris, 2009). One model of science instruction includes giving children opportunities to (a) explore, predict, and record data; (b) discuss, share data, reflect, construct, explain, develop questions, and draw conclusions; and (c) play, notice, question, wonder, and engage with the science concepts (Trundle, Mollohan, & Smith, 2013). Furthermore, research evidence supports using children's literature to teach science concepts. Well-written and developmentally appropriate books provide content knowledge, foster science process skills, arouse children's curiosity, and put science concepts and process skills into a context that is meaningful to children (Sackes, Trundle, & Flevaris, 2009).

The Science strand in LEAP Into School!™ provides opportunities for children to predict, explore, record, and discuss their findings. For example, these activities often include simple chemical reactions, such as adding food coloring to water, observing and recording the weather patterns, and noting the effects of physical energy, such as kicking a ball, throwing a beanbag, and other game-like strategies. Our science strand is standards-based and puts children in very active roles as learners exploring the world around them.

Preschool learning standards in social studies have been written on the basis of what is appropriate for young children to know about themselves and their communities. Instructional practices provide children with hands-on learning, inquiry-based activities, exploration, and cooperative

learning (Katz, Inan, Tyson, Dixon, & Kang, 2010). Suggestions for teaching social studies concepts include building on what children already know, developing concepts and processes rather than focusing on isolated facts, providing hands-on activities, capitalizing on children's interests, and using discussion about classroom problems, rules, and choices (Mindes, 2006).

LEAP Into School!™ provides whole-group and small-group instruction in science. The whole-group activities provide critical science instruction through teacher modeling and demonstration opportunities. These activities also include guided practice activities in which teachers can guide children through exploratory learning of concepts. The instruction also provides opportunities for children to (a) explore, predict, and record data; (b) discuss, share data, reflect, construct, explain, develop questions, and draw conclusions; and (c) play, notice, question, wonder, and engage with science concepts.

Children have ample opportunities to explore and discuss social studies concepts that are relevant to their lives. These topics include communities, homes, families, community helpers, working together, and geography themes, such as physical features.

Conclusion

LEAP Into School!™ was developed using the proven instructional strategies of author Nell Carvell, which have been the subject of a number of studies. Carvell, who holds an M.A. in Special Education and is a Certified Language Therapist, has more than 40 years of teaching experience, including teaching young children through adults. She specialized in working with children with dyslexia and served as director of a teacher education program focused on teachers of students with dyslexia. Carvell wrote LEAP (Language Enrichment Activities Program) while working at Southern Methodist University and oversaw its implication and development for 13 years. (See efficacy report.)

The LEAP Into School!™ program was also developed with input from academics and researchers, such as Dr. David J. Chard, the Dean of the Simmons School of Education and Human Development at Southern Methodist University, and early childhood educators. Brattle Publishing Group believes that this combination of research and application has resulted in the creation of an effective program that will improve your learners' performance and result in higher achievement gains for your preschool classrooms.

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