

# Alligators to Zucchini: 20 Early Literacy Games

R e s e a r c h B a s e

## Introduction

Before children learn to read and write, their attempts at reading and writing show steady development as they spend time in print-rich classrooms (Hiebert, 1988). Scribbles become recognizable letters, storytelling becomes more logical and detailed, and environmental print is decoded. Research from the past 30 years on emerging reading and writing has brought to light how behaviors such as language play, acting out stories, scribbling, or independently looking at books contribute to the later academic success of young children (Snow, Burns, & Griffin, 1998).

The *Alligators to Zucchini* games help nurture children's emergent literacy skills in ways that meet the child where he or she starts and grows with them. The 20 games provide sequenced, systematic exposure to activities involving visual discrimination, phonemic awareness, letter/sound connections, word concepts, and sentence and story concepts. *Alligators to Zucchini* games let 3-to-6 year olds happily and confidently begin to play their way to reading.

**Play can facilitate the development of many complex abilities,  
including the ability to read and write.**

---

The convergence of play and literacy skills acquisition is a relatively new topic in education research. Children's play, originally thought of as only a time-filler, seemed to some to be in competition with the efforts necessary to learn to read and write. Now we know that play and literacy are linked in some very fundamental ways. In fact, according to the National Association for the Education of Young Children (NAEYC), "play is the work of children and should not be considered in conflict with academic work for children through grade 3" (Neuman, Copple, & Bredekamp, 2000).

When playing, children are actively involved with the objects and people in their environment. It is their vehicle for learning. As children play, they explore and experiment to help make sense of their world in ways that are successful for them. At the same time, they use play as a means of expression. A lot can be learned about a child's literacy level by observing the action and language of his or her play (Carbo, 1996).

Eheart and Leavitt's 1985 research with preschoolers showed that play provides young children with many opportunities to explore various fundamental physical, social, and intellectual skills and concepts such as balancing, taking turns, sorting by shape and size, and telling stories and jokes. Play involves using all the senses: touching, hearing, seeing, tasting, and smelling. Contemporary research

confirms that most learning in the very early years is a result of this multisensory hands-on activity (Bruner, 1999; Wood & Bennett, 1999). Learning comes more easily to most children during the active involvement of play because using their hands and minds at the same time makes it easier for them to grasp new concepts.

Reading is a complex process that involves eye coordination, visual and auditory discrimination, and the cognitive ability to work with parts of wholes. According to Owocki (1999), active play is an important means of developing such abilities because children are more likely to understand and remember relationships, concepts, and strategies that they acquire through first-hand, meaningful experiences, like those in a play situation. Children who are arranging objects by size or color, learning rhymes, or creating stories with moveable characters are all involved in play and active learning that contributes to reading ability.

The *Alligators to Zucchini* games help set the stage for play and active learning. The look and feel of the game pieces makes them naturally appealing to children. The games provide exposure to a wide range of literacy elements from textured letters to initial sound picture cards to CVC (consonant, vowel, consonant) word cards, all presented in game format. The game play stimulates cognitive, social, and physical growth with activities such as sorting shapes by size, matching letter shapes and sounds, taking turns with a partner, and acting out an action word. The child-centered content engages children in many hours of guided play at every developmental level. The *Alligators and Zucchini* games accommodate a wide range of interests and abilities, and the Teacher's Guide ensures that the game playing experience will be successful for every child.

### **From birth through early childhood, children's brains are being wired to build the foundations for formal learning.**

---

Children are born ready to learn. During early childhood, connections are formed in each child's brain based on his or her experiences with the world. Huge numbers of connections are made but unused connections gradually disappear. The more a connection is used, the stronger it becomes, forming the basis for long-term memory (National Research Council, 2000). During this time of rapid growth and organization of the brain, it is important for children to be exposed to rich, stimulating literacy experiences that build on their early motivation to learn.

According to Jensen (1998), stimulation, repetition, and novelty are essential elements that build the foundation for children's general development and specifically, their success in reading. Diamond (1988) and subsequent researchers (Sylwester, 1995; Wolfe & Brandt, 1998) showed that the brain could literally grow new connections in response to stimulation. Since the brain of a 3-year-old is two-and-a-half times more active than that of an adult, the more exposure to exciting, novel stimuli, the greater the learning potential (Shore, 1997).

Greenough, Black, and Wallace (1987), who also studied the effects of enriching environments, added that not only novelty and repetition, but also feedback is particularly important in enhancing

brain development. In their view, specific and immediate feedback is more effective than general and delayed feedback in helping to establish learning pathways.

As part of an enriched environment, *Alligators to Zucchini* games provide many new experiences and challenges to children that set them on the road to reading. They look, listen, tell, and touch their way through games that involve playing with pictures, letters and sounds, words, sentences, and stories. In every game, whether they are matching pictures, identifying initial sounds, or dictating a story, immediate feedback is given because an adult is always there to help them process what they are learning at every level. The Teacher's Guide provides specific suggestions for giving feedback to children at all levels of the games. In addition, during the course of playing the 20 games, children's frequent exposure to the look and sounds of printed and oral language helps establish important literacy connections.

---

### **Alphabet awareness is one of the best predictors of reading success.**

---

Numerous studies examining the relationship between alphabet knowledge and learning to read demonstrate that the ability to name letters is one of the best predictors of success in early reading (Adams, 1990; Bond & Dykstra, 1967; Chall, 1996). In a study by Walsh, Price, and Gillingham (1988) on the relationship between alphabet knowledge and learning to read, their results showed that children who knew letter names before they started first grade learned to read earlier and better than those children who did not. Although they acknowledged that learning to read involves focusing on letter sounds rather than letter names, these researchers argued that children need to learn the letter names as a bridge to decoding and learning to read. Learning letter names sets the stage for other literacy skills.

Findings by Hohn and Ehri (1983) indicated that beginning readers learn to segment better when they are provided with visual models—that is, letter symbols. Their conclusion was that the letters can perform a mnemonic function and help learners remember the sounds they are segmenting. Unknown letters take energy away from figuring out, processing, and remembering words (Adams, 1990).

Children have many opportunities to interact with all 26 letters in the *Alligators to Zucchini* games. Beginning with a simple lotto game, they practice the visual recognition of both uppercase and lowercase forms of the letters. Then children begin to associate each letter with the sound it stands for through auditory, visual, and tactile activities such as identifying, sorting, and matching pictures with initial sounds. Several games are centered on textured letters to help children further internalize letter names and sounds. As in all the *Alligators to Zucchini* games, instructions are provided in the Teacher's Guide to help children at different levels of letter knowledge play and be successful.

---

### **Training in phonemic awareness improves children's reading ability.**

---

The terms phonics, phonological awareness, and phonemic awareness are often confused. *Phonics* is the connection of letter sounds to letter shapes and names (Center for the Improvement of Early Reading Achievement, 1998). *Phonological awareness* is the global awareness of many aspects

of spoken language—words, syllables, and letters. It is a developmental process; that is, children become phonologically aware in stages. First they become aware of words, then of the syllables in words. *Phonemic awareness*, the most difficult stage for emerging readers, is the realization that words are made of individual sounds or phonemes (Cunningham, 2000; Leong & Haines, 1978; Opitz, 2000).

Stanovich’s 1986 research showed that children who learn to read with little difficulty have well-developed phonemic awareness skills whereas children who have difficulty learning to read do not. Clay (1967) also found that children not making good progress in learning to read could not hear sound sequences in words. According to numerous studies (Juel, Griffith, & Gough, 1986; Stahl & Murray, 1997; Tunmer, Herriman, & Nesdale, 1988), phonemic awareness is one of the two best predictors of reading success, along with knowledge of the alphabet.

There is growing evidence that phonemic awareness can be taught to young children and that it strengthens reading achievement (Byrne & Fielding-Barnsley, 1991; Stanovich, 1986). For example, in 1979 Clay found that the children involved in her phonemic awareness training program learned to identify the sequence of letter sounds in words. Ball and Blachman also found in 1991 that children can learn to discriminate and manipulate letter sounds with practice. Adams (1990) has elaborated “there is no way to know that the word ‘cat’ is composed of three separate phonemes except by somehow learning that it is.” In other words, teaching, or in the case of young children, exposure to, phonemic awareness training is an important factor in early reading success.

Exposure to the sounds of language is at the heart of the *Alligators to Zucchini* games. In the four phonemic awareness games, children have many chances to interact with letter sounds and language. Using familiar game formats, they identify, compare, classify, and manipulate initial consonant and short vowel sounds. There is also exposure to blending and segmenting CVC words. The Teacher’s Guide provides pronunciation guides and word lists and offers many suggestions for how to vary the games to accommodate a wide range of phonemic awareness levels. Throughout the games, emphasis is placed on listening to the individual letter sounds, the sounds in words, and the words in sentences. Using picture and word cards, children are encouraged to identify objects and words that share the same initial sound or that rhyme.

### **Early and systematic phonics instruction is more effective than later and less systematic instruction.**

---

Phonics refers to how letter shapes are related to speech sounds in systematic ways (Snow, Burns, & Griffin, 1998) or the mapping of speech to print. According to researchers at the Center for the Improvement of Early Reading Achievement (CIERA), understanding this basic *alphabetic principle* requires an awareness that the sequence of letters in a written word represents the sequence of sounds (phonemes) in the spoken word. A child who can decode a word like *dog* into the three component sounds, /d/ /o/ /g/, is using phonics.

It is generally acknowledged that the key to learning to decode is the principle that letters can

represent sounds. In fact, according to Durkin (1993), “Phonics instruction serves one purpose: to help readers figure out as quickly as possible the pronunciation of unknown words.”

In her synthesis of research on beginning reading, Adams (1990) wrote that the systematic instruction of letter-to-sound correspondences resulted in higher achievement in both word recognition and spelling for young learners. Beck and Juel (1995) and Chall (1996) also concluded from their research syntheses that programs including early and systematic phonics had benefits over those that did not.

In 1971, Williams and Ackerman concluded that an instructional system that is based on the successive rather than simultaneous presentation of highly similar letters (*b* and *d*, for example) results in better discrimination and association because children are able to distinguish the critical features more efficiently when presented one at a time. More recently, Adams (1990) and Durkin (1993) have advocated separating the introduction of similar letters. Adams says, “...to minimize confusion between visually similar letters...it is best to separate their introduction in time such that the first is thoroughly learned before the second is presented.” Durkin (1993) suggests that a key factor in selecting the introduction sequence is the frequency of use. More common letters get seen more, are practiced more, and hence, may be easier for young readers to remember.

*Alligators to Zucchini* games use a 3-level approach to the introduction of 26 letter-sound connections. The approach was developed by the author from her 20 years of classroom experience with young learners. Children are introduced to letter-sound connections by looking at the letters, feeling their shapes and listening to their sounds in a well-defined sequence. Initial sounds (consonants and short vowels) are focused on first. Then using letters and sounds they know, children are guided to create and decode CVC, CVCC, and CCVC words.

In addition to the 3-level approach, the 26 letters are presented in a very specific order. The order is based on: letters that sound very different are easy to learn; letters that are visually very different so they are easy to tell apart; and letter combinations that make up a lot of phonetically regular words. The letters are introduced in small groups with which children gain familiarity before moving on to the next one. The pronunciation guide and word lists in the Teacher’s Guide provide direction in working with each child at his or her current developmental level.

### **Oral language development has an impact on a child’s reading ability.**

---

Since literacy includes both oral and written language, overall literacy development is strengthened by oral language proficiency. According to Goodman (1967), this is because written language patterns are the same as those of oral language. A goal of literacy development for children is to recognize words as both a listener and a reader, Morrow (1990) proposes that a child with strong oral language abilities is better able to anticipate and verify written words in context.

Language development is based to a degree on maturation, but research studies show that children actively work at developing their skills (Halliday, 1975; Snow, 1998; Sulzby & Teale, 1991). Children learn to talk by being talked to. They are motivated to keep talking when their early efforts are accepted and reinforced. Without a doubt, their language skills grow and improve with practice (Morrow, 1990).

Young children have the ability to learn large numbers of words quickly. Between the ages of 1/2 and 6, they can pick up an average of 9 words per day from conversation without explicit instruction; however, without quality language experiences children can fall behind their peers (Templin, 1957). Adults who use a variety of oral language styles provide children with foundational experiences that facilitate their development of reading and writing skills.

The *Alligators to Zucchini* games provide countless opportunities for rich language exchange between teachers and children. The child-centered nature of the game pieces themselves stimulate conversations and questions. During the course of game play, the language of literacy in particular is featured: letters, sounds, words, sentences, stories, consonants, and vowels. All the games enhance vocabulary by providing multiple exposures to object words, action words, and descriptive words—many familiar, some new. Children hear and have opportunities to use a wide variety of words as a result of the games' content, the process of playing, and interactions they have with adults and peers while playing.

In the sentence and story concept games, children can show their comprehension of words, sentences, and short stories by matching pictures to labels, following directions in a rhyming game, and placing magnetic characters in a scene after 'reading' a sentence. The Teacher's Guide provides specific suggestions for how to introduce game concepts, how to converse about what is going on, and how to give appropriate feedback.

### **The content of assessments should reflect and model progress towards important learning goals.**

---

Assessment that is appropriate for young children is ongoing, strategic, and purposeful (IRA & NAEYC, 1998). The results are used to adapt the curriculum and teaching methods to meet the developmental and learning needs of children, to communicate with a child's family, and to evaluate a program's effectiveness for the purpose of improving the program. A carefully designed assessment tool can significantly enhance learning because it provides the teacher with useful information about what can be taught to particular children and about the when and how of that teaching (Teale, 1990).

The *Alligators to Zucchini* Kid Grids and Game Grids are composed of the learning objectives from the five skill areas of the program. These checklists are available for teachers to record observations of children while they're playing any of the games. The Game Grids are useful for seeing, at a glance, where a class is in terms of participation in any particular skill area, which can help teachers see the range of materials needed for a class. The Kid Grids are useful for reporting progress to parents and other caregivers, determining which skills a child can use confidently, and planning the next game-playing experience for an individual child.

## References

---

- Adams, M. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: The MIT Press.
- Ball, E.W., & Blachman, B.A. (1991). Does phoneme awareness training in kindergarten make a difference in early word recognition and developmental spelling? *Reading Research Quarterly*, 26(1), 46-66.
- Beck, I.L., & Juel, C. (1995). The role of decoding in learning to read. *American Educator*, 19, (8), 21-25, 39-42.
- Bond, G.L., & Dykstra, R. (1967). The cooperative research program in first-grade reading instruction. *Reading Research Quarterly*, 2, 5-142.
- Bruner, J. (1999, April). Keynote address. In Global perspectives on early childhood education (pp 9-18). A workshop sponsored by the Committee on Early Childhood Pedagogy, National Academy of Sciences, and the National Research Council, Washington, DC: [PS 027 463].
- Byrne, B., & Fielding-Barnsley, R. (1991). Evaluation of a program to teach phonemic awareness to young children. *Journal of Educational Psychology*, 83, 451-455.
- Carbo, M. (1996). Active learning promotes reading skills. *Education Digest*, 62(2), 64-66.
- Center for the Improvement of Early Reading Achievement. (1998). *Every child a reader: Applying reading research in the classroom*. Ann Arbor, MI: CIERA.
- Chall, J. (1996). *Learning to read: The great debate* (3rd ed.). New York: Harcourt Brace.
- Clay, M. (1967). The reading behavior of five-year-old children: A research report. *New Zealand Journal of Educational Studies*, 2, 11-31.
- Cunningham, P. (2000). *Phonics they use* (3rd ed.). New York: Harper Collins.
- Diamond, M.C. (1988). *The significance of enrichment*. In *Enriching heredity*. New York: The Free Press.
- Durkin, D. (1993). *Teaching them to read* (6th ed.). Needham, MA: Allyn and Bacon.
- Eheart, B., & Leavitt, R. (1985). Supporting toddler play. *Young Children*, 40, 18-22.
- Goodman, K.S. (1967). Reading: A psycholinguistic guessing game. *Journal of the Reading Specialist*, 4, 126-135.
- Greenough, T., Black, J.E., & Wallace, C. (1987). Experience and brain development. *Child Development*, 58, 539-559.
- Halliday, M.A.K. (1975). *Learning how to mean: Exploration in the development of language*. London: Edward Arnold.
- Hiebert, E.H. (1988). The role of literacy experiences in early childhood programs. *The Elementary School Journal* 89(2), 161-171.
- Hohn, W.E., & Ehri, L.C. (1983). Do alphabet letters help prereaders acquire phonemic segmentation skills? *Journal of Educational Psychology*, 75(5), 752-62.
- International Reading Association & National Association for the Education of Young Children, (1998). *Learning to read and write: Developmentally appropriate practices for young children*. Newark, DE/Washington, DC: IRA/NAEYC.
- Jensen, E. (1998). *Teaching with the brain in mind*. Alexandria, VA: ASCD.
- Juel, C., Griffith, P.L., & Gough, P.B. (1986). Acquisition of literacy: A longitudinal study of children in first and second grades. *Journal of Educational Psychology*, 78, 243-255.
- Leong, C.K., & Haines, C.F. (1978). Beginning readers' awareness of words and sentences. *Journal of Reading Behavior*, 10, 393-407.
- Morrow, L. (1990). Preparing the classroom environment to promote literacy during play. *Early Childhood Research Quarterly*, 5, 537-554.
- National Research Council. (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press.

- Neuman, S., Copple, C., & Bredekamp, S. (2000). *Learning to read and write: Developmentally appropriate practices for young children*. Washington, DC: NAEYC.
- Opitz, M. (2000). *Rhymes & reasons: Literature and language play for phonological awareness*. Portsmouth, NH: Heinemann.
- Owociki, G. (1999). *Literacy through play*. Portsmouth, NH: Heinemann.
- Shore, R. (1997). *Rethinking the brain*. New York: Families and Work Institute.
- Snow, C., Burns, M.S., & Griffin, P. (Eds.) (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
- Stahl, S., & Murray, B. (1997). Defining phonological awareness and its relationship to early reading. *Journal of Educational Psychology*, 86(2), 221-34.
- Stanovich, K. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, 21, 360-407.
- Sulzby, E. & Teale, W. (1991). Emergent literacy. In R. Barr, M.L. Kamil, P.B. Mosenthal, & P.D. Pearson (Eds.) *Handbook of reading research*. (vol. 2 pp. 727-757). New York: Longman.
- Sylwester, R. (1995). *A celebration of neurons: An educator's guide to the human brain*. Alexandria, VA: ASCD.
- Teale, W.H. (1990). The promise and challenge of informal assessment in early literacy. In L.M. Morrow & J.K. Smith (Eds.) *Assessment for instruction in early literacy*. New Jersey: Prentice Hall.
- Templin, M.C. (1957). *Certain language skills in children*. Minneapolis: University of Minnesota Press.
- Tunmer, W.E., Herriman, M.L., & Nesdale, A.R. (1988). Metalinguistic abilities and beginning reading. *Reading Research Quarterly*, 23, 134-158.
- Walsh, D.J., Price, G.G., & Gillingham, M.G. (1988). The critical but transitory importance of letter naming. *Reading Research Quarterly*, 23, 108-22.
- Williams, J.P., & Ackerman, M.D. (1971). Simultaneous and successive discrimination of similar letters. *Journal of Educational Psychology*, 62, 132-137.
- Wolfe, J., & Brandt, R. (1998). What we know from brain research. *Educational Leadership*, 56(3), 8-14.
- Wood, E., & Bennett, N. (1999). Progression and continuity in early childhood education: Tensions and contradictions. *International Journal of Early Years Education*, 7(1), 5-16.