

Florida Center for Reading Research

Road to the Code

What is Road to the Code?

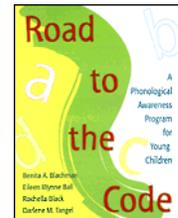
Road to the Code is a program designed to incorporate phonological awareness activities into the Kindergarten and 1st grade classroom before students have had a chance to fail. Originally conceived for students in Kindergarten, research has verified that *Road to the Code* is also effective for 1st grade students struggling with beginning reading and spelling skills. Taught by classroom teachers, resource and reading teachers and language specialists, *Road to the Code* is meant to augment instruction in critical early reading skills in classrooms that are already rich in oral and written language activities and where reading to children is a common occurrence. The research literature is replete with studies underscoring the importance of phoneme awareness and understanding the alphabetic code for beginning readers. Research has also verified that early intervention can indeed facilitate the acquisition of early reading and spelling skills. The overriding goal of *Road to the Code* is to develop in students an awareness that spoken words can be segmented into phonemes and that these segmented units can be represented by the letters of the alphabet. *Road to the Code* consists of 44 lessons that are taught in groups of 4-5 students 4 times a week over an 11-week period. Each of the 15-20 minute lessons are divided into 3 parts and follow the same daily format: *Say-it and Move-it*, a phoneme segmentation activity; letter name and sound instruction; and to conclude, an activity to reinforce phonological awareness.

The *Say-it and Move-it* activities teach students to segment words into phonemes. Students repeat a target word, move a small disk or tile for each sound they say in the word, and after the word is segmented they then blend the word (speak it at normal speed).

Letter names and sounds are introduced in a variety of game-like activities that enhance instruction in the correspondence between sound segments in words and the letters that represent the sound segments. The 8 letters used for these activities were chosen because of their ability to generate several words emphasizing a consonant-vowel-consonant pattern.

The final part of each day's lesson involves additional phonological awareness activities such as sound categorization or further practice segmenting words. Students work with initial sounds in words and words with rhyming parts. Several interesting activities engage students in word segmentation such as using a puppet for stretching sounds, listening to the teacher segment an occasional word in a story and then students blend the word, or identifying the initial sound that a picture represents and then placing the picture in a bag marked with the corresponding letter.

Road to the Code consists of one manual that contains the 44 lessons, teacher notes for each lesson, and a materials section. Reproducible materials necessary for instruction are included in the manual as well as a list of additional supplies that are required. Rather than adhering strictly to the script of the program, teachers are encouraged to vary the lessons according to the needs of their students. Important suggestions for pacing, differentiating instruction and assessment are also included.



Is Road to the Code aligned with Reading First?

Road to the Code specifically addresses phonemic awareness and phonics instruction and therefore does not include fluency, vocabulary and comprehension development. The authors of this program chose to concentrate on segmenting and blending activities based on research indicating that these particular types of phonemic awareness tasks are particularly beneficial in helping beginning readers develop an awareness of the phonological structure of words (Torgesen, Morgan, Davis, 1992). Additionally, *Road to the Code* contains activities that explicitly and systematically link sound segments to their corresponding letters, reflecting research that has shown that phonemic awareness training linked with training in sound symbol correspondence plays an important role in beginning reading and spelling acquisition (Bradley, 1988). Thus, instruction in the alphabetic code is an integral part of *Road to the Code* and represents the foundational knowledge in letters and phonemic awareness shown to be effective for beginning readers (National Reading Panel, 2000). The 44 lessons in *Road to the Code* are highly structured and follow a developmental sequence, and provide students with immediate feedback and correction, increasing their chances of mastery. During the *Say-it and Move-it* activities, students are first taught to move a disk representing one phoneme, then two phonemes, and when that is secure, 3-phoneme words are introduced. Continuous sounds are introduced at the beginning of words before stop sounds to reduce the possibility of confusion often caused by the sound distortion generated by stop sounds. Toward the end of the 44 lessons, students who have displayed mastery are gradually exposed to tiles or disks with letters so that short words can be formed during *Say-it and Move-it*.

Professional development is not included with *Road to the Code*. The teacher's manual is written in a style that is clear, explicit, and straightforward. The various activities are thoroughly described such that implementation should occur with ease. A concise script is used to facilitate presentation of certain activities, but can be varied depending on the needs of the students. Teacher Notes provide valuable and instructive information by suggesting ideas for teaching the different levels of students, alerting teachers to new information being introduced, and indicating the adaptability of some aspects of an activity, such as the sound board during letter name and sound instruction.

Research Support for Road to the Code

Road to the Code, published in 2000, is built upon research spanning more than ten years and many of the activities adapted for this program are based on previously validated research. Motivated by the fact that students with learning disabilities and other struggling readers often do not receive special instruction before third or fourth grade, the authors of *Road to the Code*, not wishing to wait until students experienced failure, developed and validated this program for the kindergarten curriculum with the express intent of improving the early reading and spelling skills of young students. Here, we report some of the early studies investigating whether phonemic awareness could be taught to young children in the regular classroom. The instructional activities used in the following studies eventually became the activities that comprise *Road to the Code*.

In 1988 (Ball & Blachman, 1988, 1991), a study involving six kindergarten classrooms in three public urban schools in New York, evaluated the effect of phoneme segmentation training on reading readiness. The specific goals of the study were: a) to explore whether groups of kindergarten children can be taught to segment words into



phonemes; b) to explore the effects of segmentation training in kindergarten on early reading and spelling ability, and c) to explore the effects of letter-name and letter-sound training in kindergarten on segmentation skills and on early reading and spelling ability. Students were selected based on standardized tests, a phoneme segmentation test and a test of letter-name/sound knowledge. Using a pretest/posttest design, students ($n = 89$) were randomly assigned to one of three groups: a) phoneme awareness training; b) language activities group (control group I); and c) no intervention (control group II). Prior to the intervention, no significant differences were found between groups for age, gender or race.

Students in the phoneme awareness treatment group met in groups of five for 20 minutes, four times a week during a seven-week period. Instruction consisted of three types of activities: a) say-it-and-move-it segmentation activities; b) segmentation-related activities; and c) letter-name/sound training. Students in control group I met with the same frequency as the treatment group, participating in language activities that included vocabulary development, listening to stories, and semantic categorizations. They also received instruction in letter-names and sounds that was identical to the phoneme awareness group. Students in control group II received no special intervention.

At the end of the seven-week intervention, students were reassessed using the Woodcock Reading Mastery Word Identification Subtest, a test of phoneme segmentation, a test of alphabet letter names and sounds, and a reading test of phonetically regular words. Results indicated that the group that received training in phonemic awareness and letter knowledge performed significantly better than the other two groups on measures of early reading and spelling skills, underscoring the importance of combining phoneme awareness instruction with instruction that links the phonemic sound segments to alphabet letters. Results also indicated that instruction in letter names and sounds alone is not sufficient to improve segmentation skills and early reading and spelling skills.

In a longitudinal study, beginning in kindergarten and extending into the second grade, (Blachman, Ball, Black & Tangel, 1994; Blachman, Tangel, Ball, Black & McGraw, 1999), a two-stage intervention was implemented in the regular classroom by kindergarten, first and second grade teachers or their teaching assistants. We report only the initial results of this study since they focus on *Road to the Code*. The kindergarten intervention included the previously described 7-week intervention of phonological awareness training, expanded to 11 weeks. Students were selected in their kindergarten year from four demographically comparable low-income, inner-city schools. There were no significant differences (race, gender, age) prior to intervention among the 84 treatment students and the 75 control students. The study used a pretest/posttest, treatment/control group design. Students participating in the study were in the low-average range in receptive vocabulary (PPVT-R), had very limited knowledge of the alphabet, and were lower skilled than students in the previous study. The treatment group participated in activities from *Road to the Code*, and the control group followed the traditional kindergarten curriculum receiving whole class instruction in letter-names and sounds. At the end of kindergarten, results from posttesting revealed that treatment children performed significantly better on tests of phoneme segmentation and letter-name and sound knowledge. Treatment children also read significantly more phonetically regular words and non-words, and were better on a measure of developmental spelling (Tangel & Blachman, 1992) than the control children. Previous research studies designed to increase phonemic awareness (Torgesen, Morgan, & Davis, 1992) took place outside of the regular classroom and

were implemented by specially trained teachers or researchers. It is of special note that this study was conducted in the regular classroom by the regular classroom teacher, illustrating the feasibility of incorporating phonemic awareness instruction within a typical classroom setting.

These studies form the empirical foundation upon which *Road to the Code* was developed. Evidence based on these studies highlight the importance of early instruction in phonemic awareness and the alphabetic principle in facilitating the acquisition of early reading skills. We conclude that the instructional design and strategies used in *Road to the Code* are consistent with current scientifically based reading research. There is also encouraging research that supports the use of this program to significantly improve early reading skills.

Strengths & Weaknesses

Strengths of *Road to the Code*

- Teaching to mastery is inherent in the design of this program.
- The manual frequently reminds teachers to verify that students have mastered an objective before continuing with the lessons, thus increasing the chances of student success.
- Highly structured, developmentally sequenced activities are designed to ensure a high rate of correct responses.
- The teacher's manual is "user-friendly" and includes suggestions for pacing and adapting to the individual needs of students by either challenging some students or simplifying for others.
- To maintain interest and motivation, materials and activities are varied. The sound board will lend itself to a wide range of uses.
- Research support for *Road to the Code* is strong and furthermore, the specific phonemic awareness tasks chosen for this program have been proven by research to be particularly beneficial for building beginning reading and spelling skills.
- Once students have mastered the letter names and sounds used in this program, teachers can use this same format for introducing other letters of the alphabet. All activities in *Road to the Code* can be adapted for use beyond the 44 lessons in the manual, increasing this program's flexibility and usefulness.

Weaknesses of *Road to the Code*:

- None were noted.

Which Florida districts have schools that implement Road to the Code?

Alachua	352/955-7527	Indian River	772/564-3150
Bay	850/872-7700	Jackson	850/482-1200
Brevard	321/631-1911	Lafayette	386/294-1351
Broward	954/765-6271	Lake	352/253-6510
Citrus	352/726-1931	Lee	239/337-8301
Clay	904/284-6510	Leon	850/487-7147
Collier	239/254-4100	Levy	352/486-5231
Dade	305/995-1428	Marion	352/671-7702
Dixie	352/498-6131	Monroe	305/293-1400
Duval	904/390-2115	Orange	407/317-3202
Escambia	850/469-6130	Osceola	407/870-4008
Flagler	386/437-7526	Palm Beach	561/434-8200
Hernando	352/797-7001	Pasco	813/794-2648
Hillsborough	813/272-4050	Pinellas	727/588-6011
Polk	863/534-0500	Sarasota	941/927-9000
St. Lucie	772/468-5021	Seminole	407/320-0000
Taylor	850/838-2500	Volusia	386/734-7190
Wakulla	850/926-7131	Walton	850/892-8331

For More Information

<http://www.pbrookes.com/>

References



- Ball, E. W., & Blachman, B. A. (1988). Phoneme segmentation training: Effect on reading readiness, *Annals of Dyslexia* 38: 208-225.
- 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: 49-66.
- Blachman, B. A., Ball, E., Black, R., & Tangel, D. (1994). Kindergarten teachers develop phoneme awareness in low-income inner-city classrooms: Does it make a difference? *Reading and Writing: An interdisciplinary Journal* 6: 1-17.
- Blachman, B. A., Tangel, D. M., Ball, E. W., Black, R., & McGraw, C. K. (1999). Developing phonological awareness and word recognition skills: A two-year intervention with low-income, inner-city children. *Reading and Writing: An Interdisciplinary Journal*, 11, 239-273.
- Bradley, L. (1988). Making connections in learning to read and spell. *Applied Cognitive Psychology*, 2, 3-18.
- Tangel, D. M., & Blachman, B. A. (1992). Effect of phoneme awareness instruction on kindergarten children's invented spelling. *Journal of Reading Behavior*, 24 (2).

Torgesen, J. K., Morgan, S.T., & Davis, C. (1992). Effects of two types of phonological awareness training on word learning in kindergarten children. *Journal of Educational Psychology*, 84, 364 –370.

Woodcock, R. W. (1987). *Woodcock Reading Mastery Tests-Revised*. Circle Pines, MN: American Guidance Service.

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