

# Orthographic Mapping

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### Stages of Reading: Comparison of Theories

Author	Chall (1983)	Frith (1985)	Ehri (1998, 1999, 2002)
Number of Developmental Stages	5	3	4
Pre-Reading	Stage 0: letters/book exposure	Logographic	Pre-alphabetic
Early Reading	memory and contextual guessing		Partial alphabetic
Decoding	Stage 1: decoding, attending to letters/sounds	Alphabetic	Full alphabetic
Fluent Reading	Stage 2: fluency, consolidation	Orthographic	Consolidated Alphabetic, Automaticity

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## Orthography

2 Greek Combining Forms

*orthos*  
straight, right, correct

*graph*  
written symbol

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Literal Meaning = correct writing

Multiple Uses of Terms  
orthography/orthographic

- ▶ Correct spelling of written words
- ▶ Writing system for a particular language
- ▶ Conventional spelling patterns (spelling rules)
- ▶ Awareness of common patterns in words that are consistent across words, but may not have 1-1 correspondence for letters to sounds (-igh, -ough, -alk)

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### Orthographic Mapping

The mental process we use to store words for immediate, effortless, retrieval. It requires **phoneme proficiency** and **letter-sound proficiency**, as well as the ability to unconsciously or consciously make connections between the oral sound in spoken words and the letters in written words. -Kilpatrick, 2016.

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The process by which children move from decoding alphabetically to reading via the fluent recognition of individual words. -Castles, Nation 2006.

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### Visual Memory

- ▶ Do we recognize words because they are stored in visual memory?
- ▶ What about the student who learns new words, but forgets them after summer break?
- ▶ Researchers believe the answer to the first question is No.
- ▶ How do they know?

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### Research Evidence

- Studies with words in mixed case print
- Study 130 years ago - found word recognition is faster than visual recognition of objects
- Children with reading disabilities without other learning difficulties generally perform as well on visual memory tasks as good readers

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- We often “block” forget names of familiar objects or names of people we know; we do not forget the printed words we know.

- We do not have enough visual memory storage to immediately retrieve 30,000 to 90,000 words

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### How does it work?

- ▶ Mental/oral "filing system"
  - ▶ Allows us to access words that have been stored
  - ▶ Words in this file must be meaningful
- ▶ Associate string of phonemes in word with letter order of word
- ▶ Words with meaningful relationship are anchored into permanent memory

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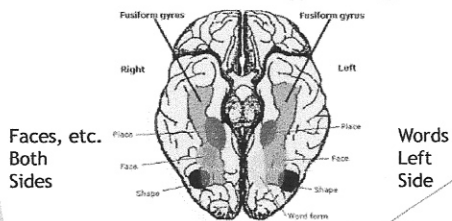
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### The Brain and Orthographic Mapping

Occurs in the fusiform gyrus region



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### Orthographic Stage

- Advanced stage of reading development
- > Development beyond the alphabetic stage
  - > Involves having developed internal representations of words
  - > Recognize words quickly and accurately
  - > Automatic
  - > Happens unconsciously

At any particular point in time a child may be reading some words slowly with reliance on the alphabetic decoding while reading other words effortlessly.

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### Predictors of Skill

- ▶ Alphabetic and Phonological Skills
- ▶ Orthographic Processing Skills
- ▶ Print Exposure
- ▶ Semantic Knowledge

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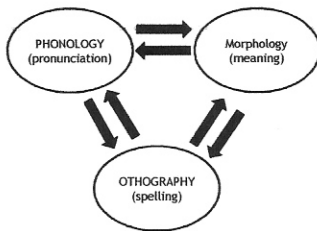
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All work together to allow immediate access to words.

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### Skills Needed

- ▶ Phonological Awareness
- ▶ Letter-Sound Skills
- ▶ Word Study

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Effective Instruction in Reading

Phonological Awareness

Letter-sound Correspondence

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How to Teach

- ▶ Incorporate reading materials appropriate to the level at which the student can phonologically and orthographically deal with words.
- ▶ Teach phonological awareness sequentially alongside letter/sound correspondence instruction.
- ▶ Teach word structure sequentially.
- ▶ Incorporate “word families”, “look-alike” words and nonsense words into reading lists.
- ▶ Read aloud to students.

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Word Families

- ▶ Words to read focus on *rime units*
- ▶ *Rime Unit = part of the syllable containing the vowel and consonant(s) following the vowel*
- ▶ Only the first sound in each word changes
- ▶ Approach can be used with most syllable types
- ▶ Rime units should follow OG sequence

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### Developing Word Family Lessons

▶ Letters/Sounds introduced:  
a, b, s, m, t, c

☆	ab	sab	mab	*tab	*cab	*bab
☆	am	sam	mam	*tam	*cam	*bam
☆	at	sat	mat	*tat	*cat	*bat
☆	ac	sac	mac	*tac	*cac	*bac

\*Indicates stopped initial sound; students beginning blending may have difficulty. Continuant sounds are easier.  
as is avoided because often the s needs a /z/ sound to make a word.

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### Developing Word Family Lessons

▶ Letters/Sounds and concepts introduced:  
Short and long vowels, digraphs, and consonants  
New syllable type = Silent-e

☆	ake	sake	make	lake	take	bake	rake
☆	ide	side	tide	ride	fide	wide	bide
☆	ede	bede	fedede	sede	lede	nede	wede
☆	ote	rote	tote	sote	mote	pote	fote
☆	ute	cute	mute	lute	nute	rute	bute

\*\*When using nonsense words or parts of words be sure the student knows that some will not be real words.

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### Developing Word Family Lessons

▶ Letters/Sounds and concepts introduced:  
Short and long vowels, digraphs, and consonants  
New syllable type = Vowel R

☆	ar	car	tar	mar	bar	far	char
☆	or	for	cor	bor	mor	nor	lor
☆	er	her	mer	ber	ler	cher	ter
☆	irt	shirt	flirt	skirt	dirt	lirt	chirt
☆	urt	hurt	spurt	murt	curt	burt	blurt

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Instructional Activities for  
Developing Orthographic Mapping

Phonological Awareness - oral only

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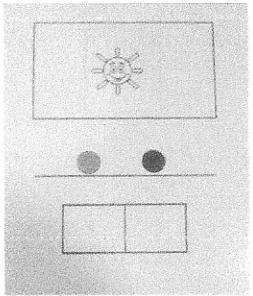
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On-set Rime practice with pictures and Elkonin boxes



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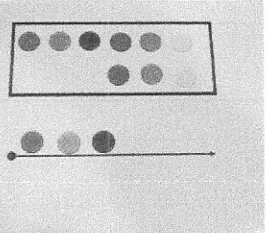
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- ▶ On-set Rime practice using lists of words presented orally
- ▶ Phonemic Chaining with colored chips representing sounds



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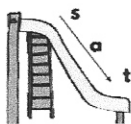
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### Word Reading Activities

Phonemic Awareness - Using letter cards and word cards

► Blend sounds on slide



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► Blending drill with letters, phono cards, or Flip Book



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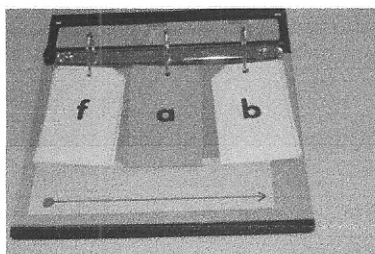
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► Flip Book



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Words/syllables to read on index cards

- ▶ Read words/syllables multiple times for fluency
  - ▶ First reading is for decoding
  - ▶ Incorporate activity for subsequent readings

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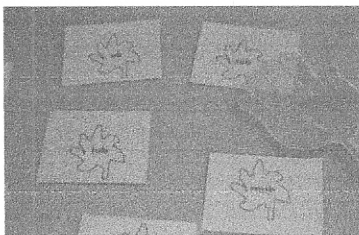
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Multisensory Activities for Multiple Readings of Words in Isolation

- ▶ Splat



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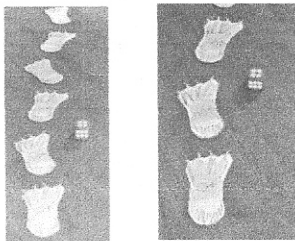
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- ▶ Read words/syllables on floor while stepping on them; Stepping Stones, Monster Feet, Hop Scotch



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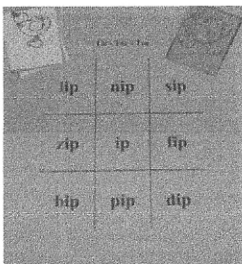
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► Tic-Tac-Toe



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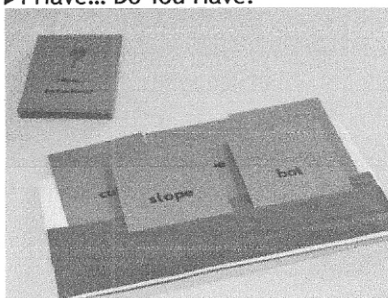
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► I Have... Do You Have?



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► Card Flip

- Place word cards on table face down.
- Student flips cards over one at a time and reads word.

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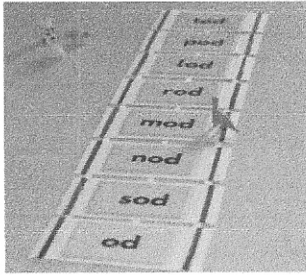
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► Up and Down the Ladder



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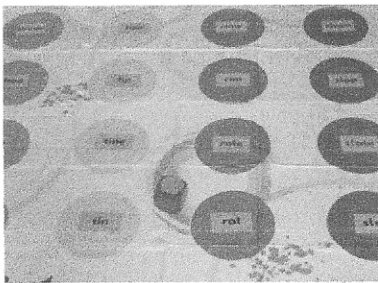
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► Twister Game



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► Roll the Dice

- Tape words to large foam dice or print words on dry erase cube.
- Student rolls dice and reads words.

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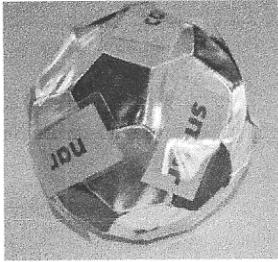
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► Ball Toss



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Word Family Bingo

<b>B I N G O</b>				
ag	id	ub	en	ot
sag	sid	sub	sen	sot
mag	mid	FREE	men	mot
rag	rid	rub	ren	rot
nag	nid	nub	nen	not

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Connected Text

Provide phrases and sentences for students to read in addition to word lists

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**Link Words to Spelling**

- ▶ Pair reading with spelling
- ▶ Student isolates sounds in words to spell
  - ▶ Finger tap to isolate sounds
  - ▶ Magnetic letters
  - ▶ Write words on paper
- ▶ Need connected text
  - ▶ Dictate phrases and sentences
  - ▶ Read back all spelling orally

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