

The Reading Brain Pathway



1. What the science of reading actually says

Reading is *not* a natural skill. The brain repurposes existing systems built for **speech and vision** to create a reading circuit.

The correct instructional sequence mirrors how those systems interact neurologically:

1. **Ear → Mouth** — *Phonemic awareness*
Children must first hear and produce sounds. This builds the *auditory–articulatory loop* in the phonological processor.
(Example: “What sound do you hear at the start of ‘sun’?” /s/.)
2. **Ear + Eye** — *Phonics (phoneme–grapheme mapping)*
When print is introduced, the *eye* (orthographic processor) connects to the existing *ear–mouth* circuit.
This is where decoding begins: they see a letter and recall its sound.
3. **Eye → Mouth → Ear** — *Reading aloud for fluency and feedback*
Now, visual recognition triggers pronunciation, and the ear monitors for accuracy.
The brain gradually shifts from decoding every sound to automatic word recognition.
4. **Eye → Mind (and Hand)** — *Comprehension and encoding (writing)*
Mature readers read silently (*eye* → semantic network).
Writing (*hand*) consolidates learning by reversing the process: mapping sound to print.

So, if we express it in plain sequence for instruction:

Ear → Mouth → Eye → Hand

2. Why “Ear → Eye → Mouth → Hand” became popular

Many phonics guides simplify it to **ear–eye–mouth–hand** because teachers *hear* first, *see* next, *say* next, *write* last.

That order *feels natural* in classroom routines.

But strictly speaking, the **phonological (ear–mouth)** pairing develops before visual mapping. The *eye* comes later, as the brain links letters to known speech sounds.

So, both phrases overlap in practice, but if you want to be precise to SOR research (Seidenberg, Dehaene, Kilpatrick, Ehri):

- ✅ **Scientific pathway:** Ear → Mouth → Eye → Hand
- ✅ **Practical classroom shorthand:** Ear → Eye → Mouth → Hand

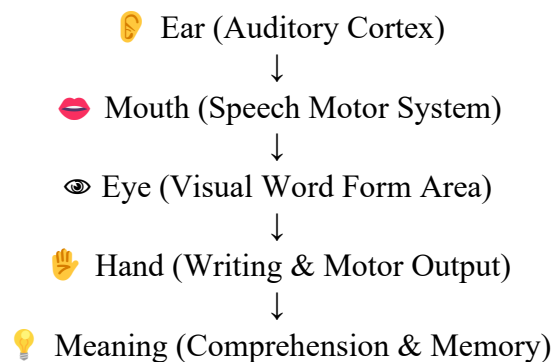
The difference lies in *when* you introduce print. If your pupils are early in Set 1 (pre-readers), stick with **ear–mouth** work first. By Set 2 onward, the shorthand version is fine because the pathways are already established.

3. Application for CHEETAH FastTrack & JamDER system

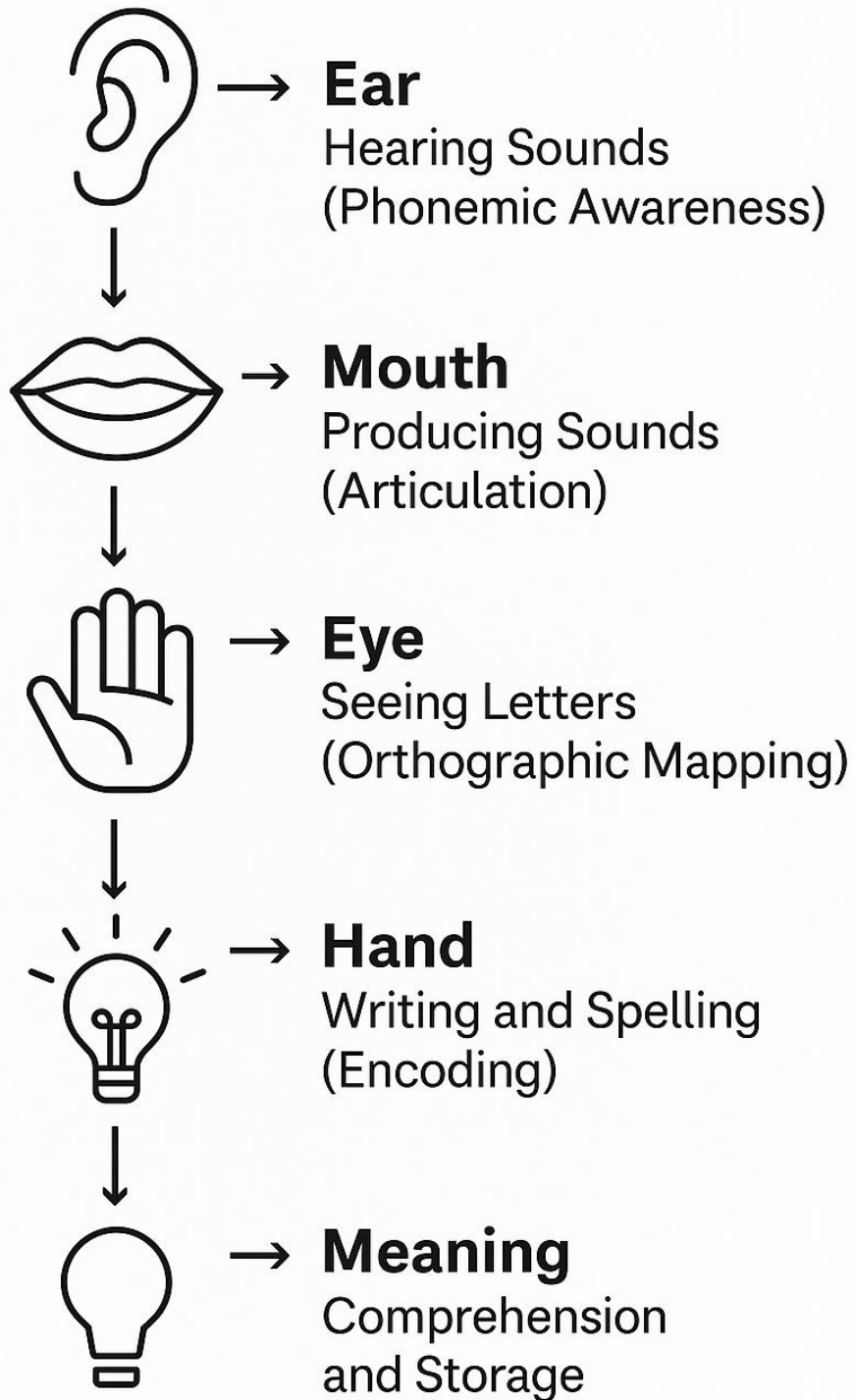
“Children learn sounds with their ears and mouths, connect them with their eyes, and master them with their hands.”

The Reading Brain Pathway

(Based on research by Stanislas Dehaene, David Kilpatrick, Linnea Ehri, and the National Reading Panel)



The Reading Brain



What Happens in Each Stage

1. Ear — Hearing Sounds (Phonemic Awareness)

Children first *hear* language. They notice individual sounds in words:

/s/ in sun, /m/ in mat, /p/ in pen.

This builds the **phonological processor**—the foundation for decoding and spelling.

2. Mouth — Producing Sounds (Articulation)

They *say* sounds and words aloud.

This reinforces muscle memory and feedback between auditory and motor areas.

“Say the first sound in *Sam*... now blend it with *am*.”

3. Eye — Seeing Letters (Orthographic Mapping)

When print appears, the **visual word form area** in the brain begins linking *graphemes* (letters) to *phonemes* (sounds).

“This letter *s* says /s/. You hear it at the start of *sun*.”

Repeated pairing builds automatic word recognition — the heart of fluent reading.

4. Hand — Writing and Spelling (Encoding)

Writing reverses the process. Pupils recall sounds and reproduce matching letters, strengthening memory.

“Write *sat*. What sound comes first? What letter makes it?”

5. Meaning — Comprehension and Storage

Once decoding becomes automatic, the brain devotes energy to understanding meaning.

Vocabulary, syntax, and background knowledge all come into play.

Teaching Insight for CHEETAH Educators

“We teach through the ear and mouth, connect through the eye, and confirm through the hand.”

So, in your classroom flow:

- **Concept & Apply** = Ear + Mouth (phonemic awareness)
- **Teacher’s Page + Pupil Pages** = Eye + Hand (phonics, fluency, vocabulary, comprehension)
- **C-DER and Reading Buddy** = Automaticity + Meaning (fluency & comprehension practice)

We look forward to working with you!

From PT and our team of educators