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Dear Teaching Colleagues and Literacy Champions,

We celebrated the 59th Indiana State Literacy Association Conference on Saturday, October 28th, 2023 at Broad Ripple High School where we welcomed celebrated children's librarian and author John Schu as the keynote speaker to address the conference theme: *Owning Our Stories: Building A Literacy Enriched Community*. Along with John Schu, we had a variety of breakout sessions regarding the enrichment of a literacy community in Indiana. Taking time to learn and celebrate what we do as educators and literacy champions is crucial for the renewal of ourselves and our profession and in being proactive participants in shaping literacy education in Indiana.

We are excited to share this 52nd volume of the Indiana Literacy Journal as an important element in furthering this conversation and work. Debra Knaebel succinctly summarizes ideas related to literacy in Indiana, especially in relation to the new legislation that has been enacted and will impact the work we do. Please enjoy her ABC guide to help foster thinking and conversations. Similarly, Debra and her co-author, Kathryn Bauserman provide a brief overview of five components in Science of Reading along with some short teaching strategies that align with these components. If you're new to Science of Reading, this is a great starting point, and it also serves as a refresher for those who might be further engrossed in the literature.

Dr. Nicole Martin and Dr. Amy Davis provide more in-depth articles related to specific teaching strategies aligned with Science of Reading. Dr. Martin's article focuses on comprehension strategies, specifically in grades K-2, where often the emphasis is placed on decoding more than comprehension. Her article provides several classroom snapshots where readers can see how the strategies she offers play out in a regular classroom setting. Dr. Davis examines the use of picture books and visualization skills in young readers by looking at specific books, visualization strategies, and examples that you can use in your classroom immediately.

Finally, we are very excited to have guest column writers for this edition. These short columns highlight topics that play an important role in literacy teaching and learning. Dr. Christina Cooper reminds us of the importance of digital storytelling as a sacred practice while Christy Moore provides numerous book recommendations to help develop empathy in young readers. Also, don't miss Jeff Thomas's, Joyce Gulley's, and Kristen Reardon's annual review of the Indiana Science Trade Book list that provide great options for your classroom.

Thank you for being a supporter of the Indiana State Literacy Association and literacy in Indiana! We will continue to work to serve you and promote literacy.

Your editors,

Benjamin Boche and Sharon Pratt

Inviting Primary Students to Believe in the Value of Text Comprehension

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Abstract

Text comprehension is foundational to kindergarten through second-grade students' learning to read, and belief in its value enables their growth. In this article, classroom snapshots of three primary teachers' efforts to focus on and model comprehension are provided. Also, additional possibilities for taking action in the primary classroom are described. The classroom snapshots and additional possibilities can be used to reflect on current practice and to develop future plans for supporting primary students' belief in the importance of comprehension.

"I could do phonics all day long and teach them how to call words. But, unless you understand what you read, what's the point in reading?" (Wendy, Grade 2)

"Because what's the point of reading?... Because I don't need you to be a word-caller. I need you to be a reader." (Diana, Grade 1)

Wendy and Diana shared these perspectives during my interviews and observations of their reading instruction. The primary teachers believe kindergarten through second-grade students' comprehension is just as important as students' decoding. Their perspective mirrors what many teachers have shared with me during my years partnering with elementary schools. The teachers are worried about primary students' privileging of skilled word-reading, and one question they often ask is how to help the students to value comprehension. In this article, I share some background information and discuss two useful approaches to supporting primary students' belief in the importance of comprehension.

What is Known about Comprehension, Reading, and Instruction

In the primary grades, students' comprehension is recognized as a central focus of reading and reading instruction. The RAND Reading Study Group (2002) defines comprehension as "the process of simultaneously extracting and constructing meaning through interaction and involvement with written language" (p. 11). As their definition highlights, comprehension entails meaning-making. Readers work actively to understand authors' ideas during encounters with texts (Almasi & Fullerton, 2012; Duke & Carlisle, 2011). Readers use a variety of comprehension strategies, such as inferencing and comprehension-monitoring. Also, readers construct and use mental models of the texts' ideas to answer questions, build knowledge, and act on personal goals (Kintsch, 2013).

The recent Science of Reading (SoR) movement recognizes the importance of comprehension (e.g., Indiana HEA 1558, 2023). Researchers' analysis of decades of published studies classifies comprehension alongside phonics, phonemic awareness, fluency, and

vocabulary as “pillars of reading” (National Reading Panel, 2000). Also, in a more recent research review, Gina Cervetti and Tanya Wright (2020) explain researchers have found “basic skills, comprehension strategies, and knowledge develop simultaneously, rather than sequentially” (p. 237). In state learning standards, comprehension is an emphasis from the start of students’ school years (Indiana Department of Education, 2023). For example, kindergarten students are expected to learn to “comprehend grade-level text, including fiction and nonfiction, and can demonstrate their comprehension orally and through writing” (p. 4). Students’ learning goals include categorizing, distinguishing importance, predicting, questioning, retelling, and textual analysis.

The potential for instruction to help students learn to comprehend from the start of their school years also is widely recognized (Shanahan et al., 2010; Stahl, 2004). Teacher read-alouds, comprehension strategy instruction, text structure instruction, text discussion, pre-reading activities, visual aids, and wide reading have shown consistent promise for enabling students’ comprehension (Duke & Martin, 2019). The instructional activities offer opportunities for students to gain insight into comprehension and to practice understanding and learning from text.

How Primary Teachers Can Encourage Students’ Valuing of Comprehension

Primary teachers can take action to encourage students’ belief in the importance of comprehension. Two approaches used by the teachers with whom I have worked include (a) focusing on comprehension as the goal of reading and (b) modeling comprehension throughout the school day. The approaches draw students’ attention to comprehension, help them to see that adult readers routinely and voluntarily engage in comprehension activity, and provide frequent exposure to comprehension strategies.

During my time with Diana (Grade 1), Wendy (Grade 2), and their colleague Mary (Kindergarten), I often saw the two approaches in use. The three teachers had taught for more than five years and were judged by administrators to be exemplary teachers of reading. Their school served kindergarten through second-grade students from small-town and rural neighborhoods. The majority were Caucasian and monolingual English speakers. Students’ socioeconomic backgrounds and academic needs varied tremendously. Half of the incoming school population was classified as below-grade-level in reading, and teachers’ classrooms included both students receiving specialized educational services and those identified as gifted/talented.

Below, I share snapshots of the three teachers’ lessons, and I discuss how their teaching can be taken up in primary classrooms. The snapshots come from an analysis of primary teachers’ reading instruction which involved identifying and categorizing their comprehension-focused teaching behaviors (Miles et al., 2020). The snapshots are typical examples of what I observed throughout the research project. I feature snapshots from this analysis because students in these classrooms displayed their valuing of comprehension during encounters with texts outside of teachers’ comprehension teaching. For example, students spontaneously volunteered the meanings of words during read-alouds (e.g., “I think sniffled means he cried really bad”), shared their thinking (e.g., “This is a sad story!” and “Our names for [dinosaurs] aren’t their real names”), and publicized their questions and text-based learning (e.g., “If a person saw Earth... and went into space, there’d be water all around Earth, and then how would [the water] not fall

off?”). They responded eagerly to teacher questions and exhibited full engagement during independent reading periods. Also, students took the initiative to recruit texts ideas’ when pursuing their goals (e.g., seeking out books in the classroom library for use during independent writing, pointing to pages in books during peer discussions).

Focusing on Comprehension as the Goal of Reading

Throughout the school year, Mary, Wendy, and Diana encouraged students’ belief in the importance of comprehension through teacher explanations and class discussions of the value of comprehension. They also emphasized meaning and meaning-making within lessons.

Classroom Snapshot #1: Teacher Explanations of the Value of Comprehension

The first classroom snapshot illustrates how the first-grade teacher used direct explanation to help students to understand the centrality of comprehension to reading. The lesson featured a read aloud of *Goldirocks and the Three Bears* (Schwartz & Coulton, 2014). As Diana finished reading the final page, she transitioned into a review of the teaching point.

- 1 *Diana:* And what do you think about that book? It’s a good one.
Students turned and whispered to each other about their reactions.
- 2 *Diana:* Okay, so when you are reading your books today, I want you to think about
 3 what’s happening on each page, just like we did. That took a really long
 4 time. Did that take a really long time?
Students nodded and murmured.
- 5 *Diana:* Yeah, probably longer than Mrs. F wanted. Do I care how fast you read?
 6 No, only if I say I’m going to time this.
- 7 *Diana:* (*Gathers students’ attention*) When you’re reading, there’s no point in
 8 reading if you don’t know what’s happening. If you don’t know what’s
 9 happening, you’re just looking at words. You want to understand your
 10 books, so when you are reading, you have to stop and think. What are you
 11 gonna do when you are reading? You’re gonna think about the words
 12 because reading is thinking and thinking is reading.

In Lines 1-4, Diana encouraged students to practice one comprehension strategy (evaluating text) and to focus on comprehension in their reading. In Lines 5-12, the teacher reminded students of the difference between “looking at words” and “reading.” She told them “stopping and thinking” are part of reading. Her emphasis was on clarifying that comprehension is the goal of reading.

Classroom Snapshot #2: Class Discussions of the Value of Comprehension

The classroom snapshot illustrates how Diana used discussion to help students to review the role of comprehension in reading. As students got ready to transition to independent reading, she led the discussion as she constructed an anchor chart of things to remember when reading. The first-grade teacher began by encouraging students to use the time to select a book to read aloud during their next visit with their kindergarten buddy. Diana reviewed the importance of selecting texts of interest to both reader and audience and began showcasing comprehension.

- 1 *Diana:* (*Writing on the anchor chart*) You probably want to make sure you
 2 understand the punctuation, and that you know what is happening in your

- 3 book. I do want to write that on there. Make sure you understand the book.
 4 Is understanding the book the same as being able to read the book? What
 5 do you think?...
- Students turn and whisper to each other.*
- 6 *Diana:* Okay, 1,2,3 back to me. What do you think? Is reading the book the same
 7 as being able to understand the book? Alexis?
- 8 *Alexis:* No.
- 9 *Diana:* You said that right away when I asked the question. Can you explain? Does
 10 it make you feel better that I agree with you? Okay, reading the book, in
 my
 11 opinion, is not the same as understanding the book. Can you tell me why?
*Several students attempt to articulate their thinking. Two students whisper
 half-formed comments about reading and about not understanding.*
- 12 *Diana:* You could just read the words in the book and never understand the story
 or
 13 the facts you're supposed to be getting from the book. Excellent! So, when
 14 you are doing your practice-read, you are going to use the tools for
 15 understanding your book. If you don't understand what's happening, you
 16 need to go back and re-read. Make a movie picture in your mind. Turn on
 17 your brain TV. Make the words you are reading make pictures inside your
 18 head. Keep track of who's talking.... In every book you read you will come
 19 to words you may not know. Think about the pictures and all the words
 20 around that word to help you understand what that word means. Will you
 21 promise me you will do that?

In Lines 1-3, Diana suggested that reading involves understanding the text. In Lines 3-11, the teacher invited students to share their thinking about the idea. In Lines 12-13, she publicized students' attempts at sharing and confirmed the importance of comprehension during reading. Then, in Lines 14-21, Diana explained how previous comprehension lessons would apply to their preparation for the upcoming visit. Her focus was on reminding students that readers actively comprehend when reading books.

Classroom Snapshot #3: Emphasis on the Value of Meaning and Meaning-Making

The classroom snapshot illustrates how the second-grade teacher showed that meaning-making is as central to reading of words and sentences as to reading of stories. As Wendy and the students were working to put word cards in alphabetic order, she paused to lead a discussion about the words they were encountering.

- 1 *Wendy:* Why would a bicycle be called bicycle?
 2 *Blake:* It has two.
 3 *Wendy:* What about tricycle? (*One student raises their hand.*). Do you have
 4 another word?
 5 *Cassidy:* I think I know the meaning of the word. Because it has two. And dissect is
 6 cutting it apart.
 7 *Wendy:* (*nods head*) Let's talk about the next word.

In Line 1, Wendy drew attention to the word’s meaning. In Lines 2-6, the teacher and students explored morphemes, defined the *-bi* prefix as “having two,” and highlighted other words. Their focus was on meaning-making within words.

Inviting Belief in the Value of Comprehension into the Classroom

Primary teachers can encourage students to believe in the importance of comprehension by focusing on comprehension as the goal of reading during instruction. Teachers can take action in the primary classroom by:

- Telling students that the goal of reading is comprehension.
- Leading a discussion exploring how understanding of ideas helps readers read and use texts.
- Talking (and asking) about meaning-making when reading words, phrases, sentences, and paragraphs.
- Helping students to investigate the meanings of word parts, words, and phrases.
- Using meaningful passages (e.g., poems, riddles, jokes) and discussing the texts’ ideas when students practice word-reading and oral reading fluency.
- Drawing attention to students’ comprehension activity during read-alouds and independent reading.
- Providing positive feedback when students are actively comprehending text.
- Helping students to use texts’ ideas to accomplish real-world goals (e.g., persuade someone about consequential issues, follow procedures in order to construct things).

These actions provide opportunities for students to notice and experience the value of understanding texts’ ideas for themselves, their classmates, and adult readers.

Modeling Comprehension Across the School Day

Throughout the school year, Mary, Wendy, and Diana also encouraged students’ belief in the importance of comprehension by sharing demonstrations of their own comprehension activity during instruction, reading, and encounters with words and meanings.

Classroom Snapshot #4: Demonstrations of the Value of Comprehension During Instruction

The classroom snapshot illustrates how the kindergarten teacher helped students learn comprehension strategies by publicizing her own thinking when teaching comprehension. Mary’s lesson featured a read-aloud of Dr. Seuss’ (1957) *How the Grinch Stole Christmas*. At the lesson’s beginning, she focused on how readers infer characters’ feelings and actions.

- 1 *Mary:* Today we are going to look at how writers use their characters. And I want
 2 you to pay really close attention to our character. Notice his facial
 3 expressions, what he does and says, and how things go throughout the
 4 story. So your job is to pay really close attention to the character. When
 5 you get to know the character in your story, it helps you to understand what
 6 is happening even better.

She reads the first two pages.

- 7 *Mary:* I can tell when I look at [Dr. Seuss’s] character that he is very unhappy.
 8 He’s kind of got that frownish look on his face, and his mouth is turned

- 9 upside down.
She reads the next four pages.
- 10 *Mary:* Oh, he's got that little mischievous grin. He's smiling because he's come
 11 up with an idea to stop Christmas. This is one of those nasty grins, like
 12 "Hahahaha, I know what trick to play on you."

In Lines 1-6, Mary shifted students' attention from their writing project to reading and explained how and why readers use text clues to understand characters in stories. In Lines 7-9, the teacher modeled her own usage. She inferred the Grinch's feelings (unhappiness). In Lines 10-12, Mary again modeled use of text clues (e.g., grinning). She shared her inferences that the Grinch is happy and has formulated a plan for ending the town's holiday. Her emphasis was on showing students how readers' comprehension activity supports their reading and writing.

Classroom Snapshot #5: Connecting Comprehension and Reading

The classroom snapshot illustrates how the second-grade teacher incorporated her own use of comprehension strategies into the class's reading. As Wendy read aloud *The Ant and the Dove* (Giles, 2000), she paused to lead a discussion about the fable's moral.

- 1 *Wendy:* What was the moral? One good turn deserves another?
 2 *Caleb:* If one person does a good thing, someone else will do a good thing for
 3 them.

The teacher revoices their explanation and asks for examples from students'

lives. One student starts to answer but says they cannot remember. Wendy tells a story about one time when she wrote a check but forgot to move the money from the household savings account to her checking account.

- 4 *Wendy:* Dr. D discovered that I had forgotten to do it. My one mistake kind of
 5 snowballed and caused lots of problems. It took Dr. D lots of hours to fix
 6 my mistake. He had to call lots of people on the phone. All while he was
 7 working. He helped me fix my mistake. There was something he needed
 8 help with this weekend, so I helped him this weekend. To pay him back for
 9 my mistake.

In Lines 1-3, Wendy drew attention to the author's message and one student's interpretation. In Lines 4-9, she modeled her own text-to-self connection. Wendy recounted a time when she helped her husband after he went out of his way to fix her mistake. The teacher's focus demonstrated that adult readers' comprehension activity is integral to their reading.

Classroom Snapshot #6: Comprehension within Readers' Reading Lives

The classroom snapshot illustrates how Wendy showcased that readers routinely and voluntarily use comprehension strategies during reading. As Wendy read aloud a chapter from an adventure novel, she commented on the story events.

- 1 *Wendy:* I think I would have a hard time with this [the character's eating of the just-
 2 killed-and-slaughtered meat]. (*Resumes reading*)
 3 *Wendy:* He's teaching her a lot of things, isn't he? (*Resumes reading*)

In Lines 1-2, Wendy paused to explain how she would have reacted in the character's situation. Then, in Line 3, Wendy again paused to disclose her conclusion that the protagonist is learning a lot from the adult mentor character. The teacher's sharing demonstrated that her reading and comprehension activity constantly co-occurred.

Classroom Snapshot #7: Encounters with Words and Meanings

The final classroom snapshot illustrates how the kindergarten teacher showed students that readers actively comprehend even when reading words and sentences. As the teacher and students sorted words during a spelling lesson, Mary encouraged them to read one of the words and asked about its meaning.

- 1 *Students:* Lost.
- 2 *Mary:* Lost. What is it? I lost a toy. That would be so sad.
Students murmur to each other.
- 3 *Mary:* (*laughing*) I know. I almost let my puppy go lost last night because she was
- 4 so naughty.

In Line 1, students read aloud the word card. In Line 2, Mary offered a sample sentence to help students define the word. She then publicized her evaluation of the sentence. In Line 3, Mary recounted her own text-to-self connection to the word's meaning. The teacher displayed her focus on comprehension, even during a lesson emphasizing the letters and sounds in words.

Inviting Belief in the Value of Comprehension into the Classroom

Primary teachers can encourage students to believe in the importance of comprehension by modeling comprehension throughout the school day. Teachers can take action in the primary classroom by:

- Demonstrating uses of comprehension strategies when teaching the strategies.
- Including personal and real-world connections during read-alouds and discussions.
- Talking about personal evaluations and inferences when reading aloud for pleasure and in science and social studies lessons.
- Sharing personal comprehension activity when reading words, phrases, and sentences.
- Publicizing personal thinking when students share written texts.
- Explaining when and how texts' ideas contributed to decision-making and actions.
- Recounting moments when comprehension activity resembles students' thinking.
- Asking questions when encountering written texts throughout the school day.

These actions provide opportunities for students to experience and envision how readers actively work to understand and use texts' ideas when reading.

Invitations to Believe in the Value of Comprehension

School reading curricula and research-based pedagogical resources (e.g., Shanahan et al., 2010) include a great deal of useful guidance and support for helping primary students learn to comprehend the texts they encounter during instruction. Snapshots from exemplary primary teachers' lessons can offer useful ideas for encouraging students to believe in the importance of

comprehension. In this article, Mary's, Diana's, and Wendy's teaching has showcased actions that can be taken to establish a focus on comprehension and to model readers' comprehension activity. Additional possibilities for taking action in the primary classroom have been shared. Now, it's your turn. How do you already invite your students to believe? What will you do in the future to help them understand its value?

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Author Note

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Picture Books and Strategies to Develop Visualization Skills in Young Learners and Reluctant Readers

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Abstract

Visualization is the cognitive process in which images are retrieved from memory without retinal input and based on readers' perception, experiences, and background knowledge (Salas et al., 2021). Skilled readers create images while reading while others may struggle. The purpose of this paper is to introduce practitioners to five picture books that lend themselves to teaching visualization. Each book is paired with a specific instructional strategy to introduce the skill, grades first to third grade, or to utilize with struggling, reluctant readers.

Have you read a book where the author uses language so masterfully that it creates vivid images and brings the story alive in your mind? You feel what the characters feel and see the setting so clearly and become entwined in the plot that you cannot put the book down until the last page is read. Then, someone in the entertainment industry decides to adapt a screenplay from the book and cast individuals who they think fit the author's original description. The director artfully recreates the story for the big screen, you go watch it and say to yourself, "that is **NOT** how I pictured the main character, setting, or even the plot." After disappointingly leaving the theater, you vow to only read the book since your mind created a much more sensational story.

The process of making mental pictures is called visualization and the ability to create these pictures leads to deeper, more meaningful comprehension (Salas et al., 2021). Skilled readers can effortlessly create these images in their minds while others may struggle. There are eight general reading comprehension strategies: (a) setting purposes for reading, (b) previewing and predicting, (c) activating prior knowledge, (d) monitoring, clarifying, and fixing, (e) visualizing and creating visual representations, (f) drawing inferences, (g) self-questioning and thinking aloud, and (h) summarizing and retelling (Duke et al., 2011, p. 64). This paper will focus primarily on visualization and provide children's literature and strategies that teachers can use to model and instruct both beginning and struggling readers.

Reading Comprehension Strategies

Teaching reading comprehension strategies are essential for readers to become self-regulated, independent thinkers (Morrow & Gambrell, 2018). These strategies are classified as thinking tools, which, given the text's demands, are used simultaneously for in-depth reading comprehension. Reutzel et al., (2005) argue that strategies should not be taught in isolation but as an integrated set in which the teacher explains and models, then students are given repeated opportunities to practice. While strategies should not be taught in isolation, it is essential that teachers understand how to model and teach visualization strategies. These strategies increase students' abilities to apply additional reading comprehension strategies (Morrow & Gambrell, 2018).

Visualization

Visualization is the cognitive process in which images are retrieved from memory without retinal input and based on readers' perception and experiences. The ability to create pictures in the mind impacts many cognitive processes such as motor control, attention, perception, planning, and memory and cultivates a heightened awareness of how readers see the world. (Salas, et al., 2021).

De Koning and van der Schoot (2013) describe reading as a "sensory experience," (p. 268) students do not rely solely on decoding words, but also utilize their senses to create mental images which further increases their comprehension (Sadoski & Paivio, 2004). Students who struggle with reading comprehension often lack the ability to create these images (Hibbing & Rankin-Erickson, 2003). When students are explicitly taught to visualize, they increase their abilities to recall, draw inferences, and make predictions (Gambrell, 1981; Gambrell & Bales, 1986; Pressley, 1976; Sadoski, 1983).

Teaching students to visualize from the text creates a more profound experience and understanding; it connects them to one's private sensory experiences making the story more personal for the reader (De Koning et al., 2013).

Dual-Coding Theory

Allan Paivio (1971, 1986, 1991, 2007) is responsible for creating and researching the theory of dual-coding theory (DCT). According to DCT, cognition involves the activity of two distinct subsystems, a verbal system (language) and a nonverbal system (imagery). The verbal system consists of words for objects, ideas, and/or events while the nonverbal system is composed of the background knowledge associated with words. These two systems are interconnected in our working memory which allows us to create images when we hear specific words so cognition is the interplay of these two systems (Paivio, 2006; Clark & Paivio, 1991; Sadoski & Paivio, 2001). Successful readers can easily integrate these two systems to create mental images from text; however, some students may experience difficulties with the verbal or nonverbal coding systems even though they are fluent readers (Hibbing & Rankin-Erickson, 2003).

Scholars have applied visualization theories in teaching in a variety of ways. Hibbing and Rankin-Erickson (2003) suggest using the "television in the mind" analogy where students create images or "channels" in their minds to match the text (p. 760). When students experience difficulty creating images because of poor background or vocabulary knowledge, Hibbing and Rankin-Erickson (2003) suggest that teachers incorporate a quick sketch to bridge knowledge and aid in students' memory retention and recall.

Wilson (2012) created an instructional strategy, "brain movies" to use during literature circles. Students were able to bring the text to life in their minds and discovered that by sharing, each student's movie was unique. Furthermore, it helped students to remember additional details from the text. During instruction, an additional job was added to the literature circle roles, movie producer. This individual was responsible for facilitating the discussion on mental imagery which included questions on picturing how the characters, setting, and plot and selecting keywords that brought the story to life for readers

De Koning and van der Schoot (2013) claim visualization instruction which focuses on the "construction" process of nonverbal representations such as student or teacher-generated drawings is the most effective (p. 267). Van Meter (2001) describe how building a physical visual representation of text such as a reader-constructed drawing can support readers' comprehension. Drawing supports the integration of the verbal and nonverbal systems because it

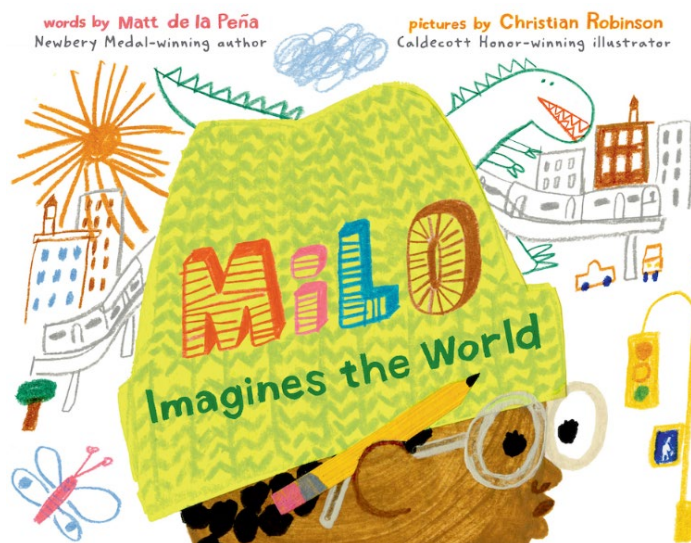
helps readers to construct accurate visual representations based on their internal representation of the text (Van Meter, 2001). Having students sketch their images moves from thinking abstractly to representing their interpretations concretely. This means teachers explicitly teach and model “how” to construct mental images during reading. Instruction requires repeated practice, intentional planning, and implementation of a specific strategy with the goal of students listening closely and thinking critically.

The purpose of this paper is to introduce practitioners to five picture books that lend themselves to teaching visualization. Each book is paired with a specific instructional strategy to introduce the skill, grades first to third grade, or to use with students struggling with constructing mental images.

Book 1 – de la Peña, M. (2021). *Milo imagines the world*. G. P. Putnam’s Sons.

Audience: 1st-3rd grade

Visualization Strategy: Storyboarding in Person (Salas, et al., 2021)



Milo Imagines the World is a story written by Matt de la Peña, illustrated by Christian Robinson. Milo rides the subway in the city with his older sister to visit their mother in jail. To pass the time, he studies the other passengers’ faces and imagines what their life is like outside the subway ride. One passenger, a whiskered man with a crossword puzzle, Milo imagines him playing solitaire in a cluttered apartment full of pets and he shares his drawing with his sister. Another boy boards the train with his bright white Nikes and Milo imagines the boy being carried away in a horse-drawn carriage that carries him to a castle. Throughout the train ride, Milo continues to imagine and draw people in his sketch book until he gets off the train. When he arrives at the jail, he shares his drawings with his mother.

The strategy to use with students is called Storyboarding in Person and according to Salas et al. (2021), it is “a collaborative, kinesthetic visualization practice that draws from applied theater” (p. 16). Teachers select a portion of the text and divide it into three distinct visual frames then students use their bodies to “act out” these sections of the text. The second scenario Milo imagines is the boy with the bright white Nikes:

1. *Milo imagines the clop clop clop of the horse-drawn carriage that will carry him to his castle.*
2. *Imagines the clink clink clink of the guards slowly lowering the*

drawbridge. 3. Across the human-made moat the boy is met by a butler, two maids, and a gourmet chef offering crust-free sandwich squares (de la Peña, 2021).

Teachers would first go through this section of text and divide it into three parts then divide students into groups of four and ask the first group to illustrate the three sections of the text on a storyboard frame (Figure 1) and work collaboratively how they are going to act out each frame.

Figure 1

Storyboard Frame

Frame 1	Frame 2	Frame 3

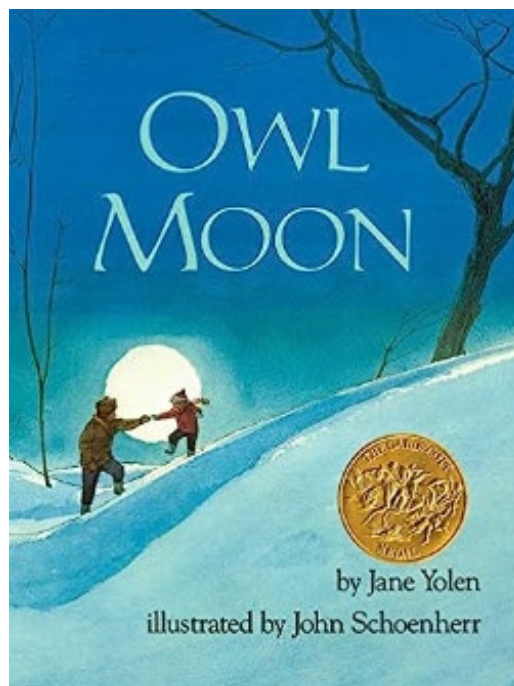
Note: Adapted from Salas et al., 2021.

There are five scenarios in this book that Milo imagines so you could assign the five to groups of students then progress through the entire story with students first sketching then acting out their assigned scenario. This strategy incorporates listening, speaking, and kinesthetic movement.

Book 2 – Yolen, J. (1987). *Owl moon*. Philomel Books.

Audience: 1st-3rd grade

Visualization Strategy: Image-Scaping (Salas, et al., 2021)



Owl Moon is a classic story written by Jane Yolen and illustrated by John Schoenherr and won the Caldecott Medal in 1988. It is an excellent choice for visualization because of Yolen's use of descriptive language. Late one winter's evening, a little girl and her father go into the woods searching for the Great Horned owl. The girl follows her father as he calls out, "Whoo-who-who-who-who-who" and they listened quietly for a response, no response. They travel further into the woods and he calls out again, and this time, an owl responds. Her father shines his flashlight and they catch a glimpse of the owl before it flies off and they return home.

The strategy to incorporate with this book is called Image-Scaping (Salas, et al., 2021). This strategy utilizes one large whiteboard in which individuals or small groups of students add their interpretations. The teacher begins by reading a small segment of text and students are invited to sketch on a piece of paper for about two minutes then their interpretations are added to the large board for about a minute. Students can come up individually or with a small group. Salas et al. (2021) describes the result as "collaborative, layered group illustration or representation of the passage" (p. 16). Furthermore, after completing the class picture, the teacher can hold a discussion about the accuracy of the groups' interpretations.

How can this strategy be implemented with *Owl Moon*? The first page of the story reads:

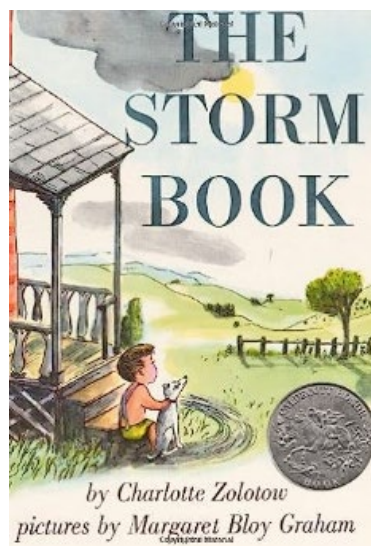
It was late one winter night, long past my bedtime, when Pa and I went owling. There was no wind. The trees stood still as giant statues. And the moon was so bright the sky seemed to shine. Somewhere behind us a train whistle blew, long and low, like a sad, sad song. (Yolen, 1987).

The teacher would model this passage to students by including the following elements in the visual representation: snow on the ground, large giant trees with no movement of the leaves, the moon, and a representation of the train whistle with musical notes. Teachers need to leave enough space for students to add to this drawing as the story progresses.

Book 3 – Zolotow, C. (1952). *The storm book*. Harper & Brothers Publishers.

Audience: 1st-3rd grade

Visualization Strategy: Logographic Cues (Beers, 2003).



The Storm Book written by Charlotte Zolotow and illustrated by Margaret Bloy Graham was written in 1952 and won the Caldecott Medal in 1953. This timeless story is about weather patterns, specifically a little boy's curiosity during a summer thunderstorm. The story captivates with the poetic text featuring onomatopoeia as the thunder "rrrrMMMMMMMMDDDDRRRRRR R R R" through the countryside, city, and seashore. Charlotte Zolotow's word choice skillfully describes the sights and sounds of a summer thunderstorm.

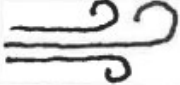
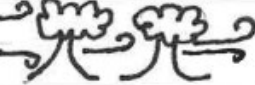


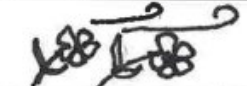



The visualization strategy is Logographic Cues (Beers, 2003) which is described as "a visual symbol used to support readers as they navigate a given text" and "designed to offer readers a high-utility message in a minimum amount of space" (p. 129). Teachers can design a bank of symbols; however, it is best for students to create their own which leads to a more meaningful, deeper connection to the story. Logographic cues support comprehension as they visualize the progression of the story, this happens through the personalized lens represented by their chosen logo graphics (Salas, et al., 2021).

To model this strategy for students, teachers should use a short excerpt from the text and use a think-aloud method to create their logographic cues (Figure 2). The passage from "The Storm Book:"

*A little cool **wind** suddenly races through the **trees**, sways the **rambler rose**, bends the **daisies** and **buttercups** and **Queen Anne's lace** and the long **grass** until they make a great silver sighing stretch down the **hill** (Zolotow, 1952).*

Teachers may have to share photographs with students to build background knowledge and refer back to the text passage so students can represent the text accurately, for example, adding the wind symbol to each cue and making sure the movement was correct. This exercise can help students envision the text and connect their experiences.

Figure 2*Logographic Cues for "The Storm Book"*

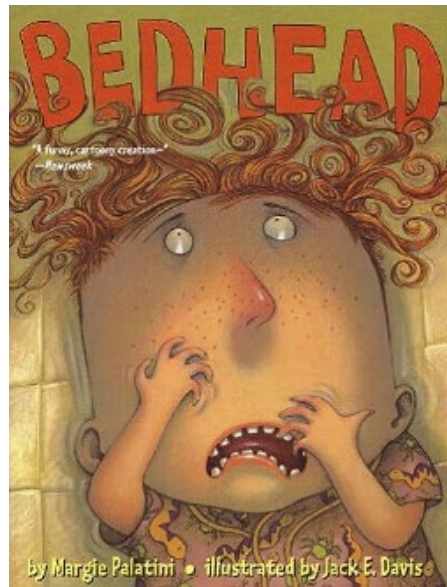
Word	Logographic Cue
wind	
trees	
rambler rose	
daisies	
buttercups	
Queen Anne's lace	
grass	
hill	

Note: Adapted from Salas et al., 2021.

Book 4 – Palatini, M. (2000). *Bedhead*. Simon & Schuster.

Audience: 1st-3rd grade

Visualization Strategy: Reading Graffiti (Salas, et al., 2021)



Bedhead is an enchanting story written by Margie Palatini and illustrated by Jack E. Davis about a young boy, Oliver, and his unruly hair. The story features onomatopoeia and begins with Oliver “shuffle-shlump” to the bathroom and his curls “boing” and “bink-bink boing” throughout the story. Because today is class picture day, he tries to employ his sister and parents to help him get his hair under control. They goop, glop, and mousse his hair, however, Oliver’s hair is still out of control. He decided to contain it in a hat and when it came time to take the picture, he removed his hat and his curls “boing” everywhere, forever captured on the class picture.

The strategy to utilize with this story is Reading Graffiti (Salas, et al., 2021). According to Salas et al, this strategy is based on the concept of a “gallery walk” (p.14). The purpose is to have students illustrate how the text invokes images in the reader’s mind both concretely and abstractly. Teachers place large sheets of paper around the room with specific textual segments written at the top. After reading each segment from the book, the teacher asks students to go to the paper and quickly illustrate or sketch their interpretation graffiti style. After sketching, students return to their desks and listen for the next segment. This process builds upon each segment and encourages students to explain their interpretations. Salas et al. (2021) suggested the following questions to ask: “What might be missing?” and “What might we take away?”

In connecting this strategy to *Bedhead*, the teacher must go through the book and select sections of the text to add to the paper. In the selection process, make sure to begin with just a few sentences until students become accustomed to the task. For example, the first segment from the book could be:

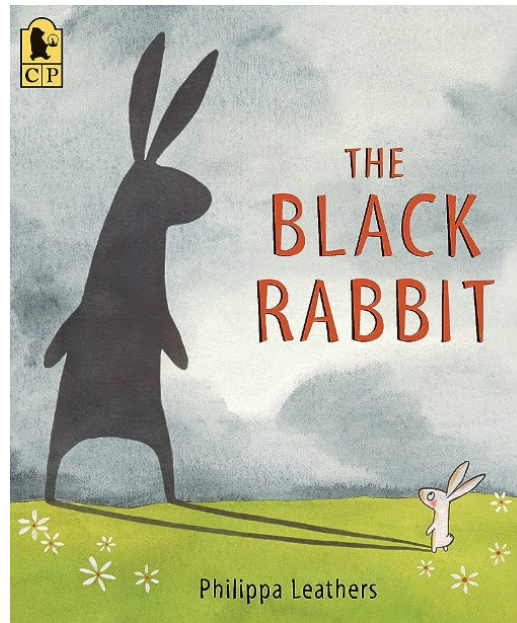
Shuffle-Shlump. Shuffle-shlump. Shuffle-shlump, shlumped bleary-eyed Oliver out of bed, down the hall, and into the bathroom. He yawned. He yanked. Splashed some water. Swished some mouthwash. Gave his front teeth a passable brushing (Palatini, 2000, p. 1)

Teachers can both model for students what this looks like either through kinesthetic movements or illustrate what this might look like through a drawing. Illustrator, Jack E. Davis, has captured this image on the first pages of the book. You can share this with students after they have created their own interpretation and compare it to the book. This strategy not only encourages visualization, but also incorporates listening and speaking.

Book 5 – Leathers, P. (2013). *The black rabbit*. Candlewick Press.

Audience – 1st-3rd grade

Visualization Strategy – Six-Grid graphic organizer (Davis, 2021).



The Black Rabbit is about a small, white rabbit that is being followed by a large, black rabbit on a beautiful, sunny morning. Everywhere he runs, behind a tree, over the river, the shadowy rabbit follows him. The rabbit tries to lose the black rabbit when he enters the deep, dark woods. Fortunately, the rabbit loses the black rabbit, however, he's confronted with a new problem, the wolf. The wolf chases him out of the deep, dark woods and just when the rabbit thinks the wolf is going to eat him, he opens his eyes to see the black rabbit standing behind him. The wolf runs off and the rabbit take the black rabbit's hand and they bounce across the field together.

The Six-Grid graphic organizer's preparation phase consists of teachers selecting a read-aloud text at the students' appropriate level and dividing the text into six manageable sections. Within each section, the teacher closely examines and selects vocabulary that might be multiple meaning words, adjectives, or verb tense that needs to be brought to students' attention. The implementation phase consists of students folding an 8 1/2"x11" piece of paper into thirds and then in half to create six boxes. Before reading a section of the text, teachers discuss vocabulary in-depth and provide the words in a visual format, for example, written on the whiteboard. While reading the section of the text, students listen and sketch the images that come to mind. After sketching, students can either label with the accompanying vocabulary word or write a brief sentence describing their picture (Figure 3). The procedure is repeated for each section of the text until all boxes are completed (Figure 4). Teachers should model first what this process will look

like for students. When initializing the six-grid organizer, students may struggle to transfer images to paper; however, through repeated practice, they will become more proficient. Teachers may also choose to reread the book to students sharing the illustrations so that students can compare the illustrator's interpretation to their own.

The Black Rabbit contains 20 pages with text so teachers can use sticky notes to mark off the six sections. The first four sections could contain three pages with the last two sections containing four pages. Within each section, teachers can look for unfamiliar vocabulary or grammatical patterns to point out to students. The first section of text reads:

*Rabbit woke up one morning and stepped out of his **burrow** into the bright sunlight. It was a beautiful day. But something was wrong. He was not alone. Rabbit was **scared**. "Go away, Black Rabbit!" he cried. But the Black Rabbit did not move (Leathers, 2013).*

The words selected from this first section to review with students are burrow and scared. Explain to students that you will be reading a portion of the text and they are to listen first then give them about a minute to sketch, label with vocabulary, and write a brief sentence about their drawing. Repeat the process until you've read the entire book then allow students to discuss their organizers with a peer. This strategy incorporates listening, speaking, and writing.

Figure 3

Visual Interpretation of Text – Grade 1


Text Read Aloud– <i>Fox the Tiger</i>	Example of Student Sketch
<p>"I wish I were a tiger," says Fox. "Tigers are big. Tigers are fast. Tigers are sneaky. Tigers are the best." (Tabor, 2018, pp. 5-9).</p>	

Figure 4
Completed Six-Grid Organizer – Grade 1



Conclusion

The ability to visualize is a language process, it connects words to visual concepts of these words and leads to deeper, more meaningful comprehension. Research affirms when mental imagery strategies are taught, there is a powerful effect on students' ability to recall text information, draw inferences, and make predictions (Gambrell, 1981). This means teachers explicitly teach and model "how" to construct mental images during reading. Instruction requires repeated practice, intentional planning, and implementation of a specific strategy with the goal of students listening closely and thinking critically. Implementing mental imagery strategies requires some planning and preparation. They should review children's literature to see if the prose lends itself to visualization, for example, how does the author use descriptive language? Additionally, teachers also review and adapt mental imagery strategies to their students' ages and abilities. Incorporating instructional practices such as teacher or student-generated drawings and modeling how to implement these strategies is equally important.

Those students who struggle to construct mental images and English language learners sometimes lack the background and vocabulary knowledge to successfully comprehend text. Hibbing and Rankin-Erickson (2003) write, "the issues faced by many of our students, specifically, limited vocabulary, little background knowledge about many topics, lack of understanding of the relationships represented in the language of the text..." (p. 758). With intentional planning, teachers can implement strategies that assist students in understanding the

relationship between language and images as well as building background and vocabulary knowledge to successfully comprehend text.

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An ABC Guide for Literacy Teachers

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Indiana State University

Abstract

With new literacy legislation passed in the state of Indiana, the Science of Reading (SoR) is a hot topic for all literacy educators and others involved in the educational process across the state. With this added pressure to comply with SoR mandates, this article shares twenty-six ideas alphabetically from A to Z that all teachers who teach literacy in any grade K-12 can use while navigating the transition and change. Each of the ABC's ranging from *asking questions* and *being positive* to *yet* and *zeal* includes ideas and suggestions for the classroom teacher in a positive and uplifting manner.

With the new Science of Reading (SoR) legislation passed recently in the state of Indiana, teachers and teacher educators are reviewing the reading curriculum with a renewed understanding of the components of SoR: Phonemic Awareness, Phonics, Vocabulary, Fluency, and Comprehension. Every teacher will tell you what matters is student understanding, and the goal is comprehension. "Learning is stronger when it matters, when the abstract is made concrete and personal" (Brown, Roediger, & McDaniel, 2014, p. 11). During this time of transition and change, it is easy to become overwhelmed.

Here, I present to you my ABC Guide for Literacy Teachers as an acrostic poem to help you stay energized and hopeful throughout your teaching career even when things are changing. Explanations of the poem content follows. As you read, you should get the feeling that you are doing these dispositional and pedagogical skills because *You Got This!*

Ask questions.
Be positive.
Consistency.
Demeanor.
Eat your breakfast.
Faith.
Grit.
Humor.
Integrity.
Janitors and Secretaries.
Knowledge.
Listen.
Mentor.
Never forget to communicate with parents.
Ounce of Prevention.
Procedures.
Questioning.
Read.
Smile.

Technology.

Un-afraid.

Valor.

Wait Time.

X-tra.

Yet (the power of “Yet”).

Zeal.

So, what do each of these topics mean to classroom literacy teachers? Following are some thoughts as you go about your daily literacy instruction:

Ask Questions. Do not be afraid to ask questions of your colleagues and administration. You do not have to be the best at everything. Your colleagues in the building, the district reading specialist, and your past university professors are there to help you achieve and be the best teacher. Reach out, you are not alone in your efforts. Remember, “more often being the best means just being the best version of you” (Barker, 2017, p. 21).

Be positive. Your outlook will determine what type of year you have. When you have a positive outlook and attitude, it will be contagious to those around you. Greet colleagues and students with a smile. Rita Pierson (2013) in her “Every Kid Needs a Champion” TED Talk says she gave her students a saying. This saying was: “I am somebody. I was somebody when I came. I’ll be a better somebody when I leave. I am powerful and I am strong. I deserve the education that I get here. I have things to do, people to impress, and places to go.” If you have not seen her TED talk, it is available online.

Consistency. Students need to know what to expect and will have great respect for you when you are consistent with your rules and procedures for your literacy lessons. Students in all grades succeed better with reading when the teachers say what they mean and mean what they say, but do not say it mean.

Demeanor. It is important to present yourself as a literacy professional which means holding yourself to a higher standard. Your demeanor is evident in your appearance and shows in your respect for students, colleagues, and parents.

Eat your breakfast. You will need to eat your breakfast to keep your energy high to keep your attitude positive. This energy will help you keep your energy and enthusiasm as you teach your phonemic awareness, phonics, vocabulary, fluency, or comprehension lessons.

Faith. Have faith that you will do a good job and your students will be successful. If you believe it, this concept will become a self-fulfilling prophecy. When your students know that you believe in them and their ability to learn to read, and that they can succeed; then they believe in themselves and do succeed (Jussim, 2001; Rosenthal, 2012). Having a bad day, week, or semester? Here’s an idea, using an expo marker, write: *I AM a great teacher. My students WILL succeed.* on your mirror at home and read it to yourself every morning before going to work.

Grit. The first year is hard work, but you can persevere until the last day of school. Grit is *passion* and *perseverance* over the long haul (Duckworth, 2016). Never give up on yourself and your students. “Grit is one of the key reasons why we see such differing levels of achievement between people of the same intelligence and talent levels” (Barker, 2017, p. 64).

Humor. You need to be able to laugh at the little things. Share a joke of the day with your students and if it relates to literacy, even better. For example, why did it take so long for the pirates to learn the alphabet? Because they got stuck at *C*.

Integrity. Say what you mean and mean what you say when communicating with students, parents, and colleagues. Price-Mitchell (2015) shares five ways to increase integrity. The literacy teacher can do this by 1) including integrity into the classroom climate and culture, 2) developing and using moral vocabulary, 3) having an appropriate response when cheating does occur, 4) starting meaningful conversations using famous quotes, and 5) helping students to believe in themselves.

Janitors and Secretaries. Two people you want to always remain on their good side are the janitors and secretaries of your building. They are the two that can make your life easier. Why not invite them into your classes to read aloud to your students at least once a year? Don't forget the lunch person or the school safety officer (SSO). Here's an idea, ask the SSO what his or her favorite picture and chapter books were growing up. With some direction from you, maybe the SSO will video record him- or her-self reading the book aloud or talking about how they use literacy in their career. The purpose is to see that the adults your students encounter on a daily basis value literacy.

Knowledge. Make sure that you are teaching accurate information. This is especially important given the changes with SoR legislation and mandates. Not every curriculum covers SoR components well. This means you may need to do some research more than one night before a lesson. For teachers in younger grades, Orton-Gillingham (Academy of Orton-Gillingham Practitioners and Educators, n.d.) or LETRS (Lexia, 2023) training is valuable.

Listen. The key to good communication is active listening. Take the time to get to know your students and their personalities. When communicating with your students use their preferred channel of communication: directive (tell), requestive (ask), nurturative (care), or emotive (play). If you use the preferred method of communication after you have listened to the student, you will have less instances of miscommunication (Kahler, 2006; Gilbert, 2020; Regier, 2020).

Mentor. Find an outstanding high-quality positive colleague who can provide advice and support as you navigate your use of the SoR curriculum.

Never forget to communicate with parents. It is important to stress the positive as they are your biggest allies. Furthermore, add a paragraph to the weekly classroom newsletter to summarize the literacy concepts being learned with some suggestions for practice at home.

Ounce of Prevention. Organize your classroom and materials so that activities run smoothly. If you think this through, you will prevent mass chaos and increase learning opportunities. The old saying, an ounce of prevention is worth a pound of cure, is very accurate and useful in the classroom.

Procedures. Not only do you need to understand the procedures of the building such as what to do during a fire drill; dismissal, etc.; but you also need to establish procedures for your literacy instruction. For the procedures that involve students, make sure to practice with them. This is so very important for the literacy classroom.

Questioning. As a judge listens to both sides of an issue, when students have a problem or issue, be sure to ask questions so you have all the facts before making a decision or jumping to conclusions.

Read. Read to your students every day, no matter your grade level. Choose books from both the school library and your classroom library. Are you close to a college or university? Reach out to the literacy faculty and invite them in to read to your students. What about others at your school (i.e.: literacy coaches, principal, teacher across the hall) or local community members (i.e., have an accountant read *Alexander, Who Used to be Rich Last Sunday*)?

Smile. Greet every student with a smile so they know you are happy to see them. For some students, this is the only smile they see all day. A smile also conveys warmth and acceptance. These students are more likely to work diligently at a subject they may be struggling with if they feel that you genuinely like them.

Technology. Technology does not teach students, teachers teach students. Use technology in an educational manner to enhance your literacy instruction. Many of today's basal readers that are SoR aligned include software to use in the classroom. Another resource for learning about new approaches or technology are your instructional designers or local university professors. Many education university professors would be more than willing to share with the local educators and to learn of the ways that the local teachers are using technology in their classrooms (to help them prepare future teachers).

Un-afraid. You are the most important component of your classroom. Be unafraid to take chances. Phillips (2016) states in her TEDx Talk on spiraling the curriculum: "Try something new; no one will die." She is, of course, speaking on moving away from traditional teaching and moving toward research-based instruction, specifically interleaving.

Valor. Be brave and bold when advocating for your students. For many of them, you are the only one who is advocating for them.

Wait Time. When you ask higher order questions of your students, give them time to think through their answer before calling on someone to answer. Your more reflective students will appreciate this time to reflect (Kahler, 2006; Gilbert, 2020; Regier, 2020).

X-tra. Go the x-tra mile and do the x-tra little things for your students. Put in the X-tra effort your student need for them to succeed. Their future reading success will thank you.

Yet (the power of "Yet"). Your students will learn at different rates, but **yet** they will all learn. Be patient, they just are not there yet (Dweck, 2016). Include the word *yet* in student feedback if they did poorly. Maybe they do not have it yet, but they will!

Zeal. An enthusiastic literacy teacher leads students in enjoyable yet research-based literacy learning activities.

And there you have 26 dispositional and pedagogical skills that every literacy teacher uses to be successful in their classroom. You Got This.

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Who's Afraid of the Science of Reading?: Face Your Fears with Top Reading Strategies

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Abstract

While the National Assessment of Educational Progress (NAEP) *Report Card* for Indiana fourth- and eighth-grade public school students in Indiana are rated as *Basic*, for fourth grade the score is lower than it has been since 1992 and eighth grade in 2005. The Indiana state legislature has passed into law a bill requiring the five components of the science of teaching in both the K-6 settings and teacher preparation programs. First, teachers need to understand the Science of Reading and its components. Then teachers can put some strategies to work to help their students excel in reading. This article discusses what the five components are and gives some research-based activities that teachers can use in the regular classroom.

Editors' Note: *This article provides an overview of research-based approaches for teaching reading to elementary age students. It should be understood that no one article can provide comprehensive information on the Science of Reading and that multiple sources should be reviewed to implement research-based instructional approaches within a literacy curriculum.*

Learning to read is a foundational skill required in all aspects of life. Learning to read is not as easy task. In 2023, the Indiana General Assembly passed House Bill 1558 that requires the Science of Reading (SoR) to be implemented across the state. This will affect classroom teachers and teacher preparation programs alike. Educators across the state are now viewing the curriculum through the lens of SoR:

- Is the curriculum aligned with SoR and best practices?
- What are the components of SoR and how can they be taught explicitly and systematically?

While these are good questions to ask, there is no need to be afraid of SoR.

The National Assessment of Educational Progress (NAEP) tests public school students' literacy abilities every two years (NAEP, 2022). Since 1992, Indiana's average fourth grade reading scores have remained at the *Basic* level (cut score of 208 for 2022). The *Basic* level is defined by NAEP as "partial mastery of prerequisite knowledge and skills that are fundamental for performance at the *NAEP Proficient* level" (para. 2). The *NAEP Proficient* level is defined as "represents solid academic performance for each NAEP assessment. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real world situations, and analytical skills appropriate to the subject matter" (para.1). Since 2015, Indiana's scores have been dropping to an all-time low in 2022 to 217. This is above the national average by one point (not statistically significant). This downward trend started before the COVID pandemic and resulting school closures.

Regardless of grade level, teachers should instruct students in all five components of the Science of Reading (SoR). Younger grades start with oral language and phonemic awareness and progress through phonics, vocabulary, fluency, and comprehension. In the regular classroom in

high school, content area teachers use vocabulary, fluency, and comprehension strategies to assist students in reading to learn. Even middle and high school teachers need to know and understand the five components of SoR. The story of the author Patrica Pollacco, as described in the book *Thank You, Mr. Falker*, is an excellent example. All teachers everywhere, regardless of content area or grade level, can be a struggling student's very own Mr. Falker.

But what are the five components of reading? In 2000 the National Reading Panel (NRP) identified the five components as Phonemic Awareness, Phonics, Fluency, Vocabulary, and Comprehension. We will showcase the five components by defining what each component is and sharing research-based strategies that teachers of older students as well as younger students can use in their regular classroom. Remember throughout the discussion that scaffolding is one of the most important techniques for delivering explicit instruction.

Scaffolding builds learning by supporting students with guidance by a teacher or more capable peer. This guidance is then slowly removed as students become more capable. Scaffolding within a student's Zone of Proximal Development (Vygotsky, 1978) allows teachers to instruct students and shift "the responsibility for learning from the teacher to the students" (Honig, Diamond & Gutlohn, 2018, p. 625). Furthermore, teachers can interleave (alternating topics during practice) their guided and independent practice opportunities to boost student memory and transfer of knowledge (Firth, Rivers, & Boyle, 2021; Van Hoof, Sumeracki, & Madan, 2022). Let us start with phonemic awareness.

Phonemic Awareness

Phonemic awareness is defined by the *Reading Sourcebook* as "the ability to detect, identify, and manipulate phonemes in spoken words" (Honig et al., 2018, p. 2). The NRP defines phonemic awareness as "the ability to focus on and manipulate phonemes in spoken words" (p. 2-1). Phonemes are the smallest individual speech sounds (NRP, 2023). There are approximately 44 phonemes (sounds) in the English language. Phonemic Awareness is an essential component of reading because it lays the foundation of phonics instruction. Phoneme skills range from basic phoneme isolation (recognizing that *dog* begins with /d/) to more difficult phoneme substitution (changing the /t/ of *cat* to /p/ to make *cap*). Dr. Tolman explains the levels of phonemic awareness in her hourglass figure (Moats & Tolman, 2019). At the top of the hourglass is phonological awareness (an umbrella term including words, syllables, onset, rime, and phonemes) and the narrowest part of the hourglass is the individual phoneme. Between the top and middle are the early, basic, and advanced levels of phonological awareness and phonemic awareness. You can visit Dr. Tolman's website (<https://drcaroltolman.com/introduction-to-the-tolman-hourglass-figure/>) to learn more about the hourglass figure.

Most students benefit from just five to ten minutes' worth of focused daily phonemic awareness activities over 12 to 20 weeks. Activities that you can use to help you teach phonemic awareness in systematic explicit manner are 1) Auditory Onset and Rime Activities and 2) Elkonin Boxes.

Auditory Onset and Rime Activities

Part of phonemic awareness is recognizing onset and rime. Onset is the consonant letters at the beginning of a one-syllable word or the first part of a syllable in a multi-syllabic word. An easy example would be the /b/ of *ball* or the /str/ of *string*. Rime is the vowel and following consonants. In the word *ball*, the rime is /all/. In the word *string*, the rime is /ing/. Rime is different from rhyme in that rime refers specifically to the spelling and rhyme refers to how the

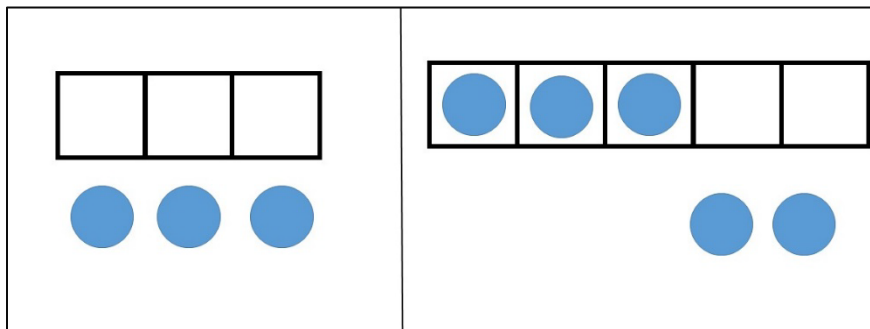
word sounds. The words *I* and *eye* rhyme but they do not have the same rime. In the activity called Auditory Onset and Rime, you decide if you are focusing on the onset or the rime for that day's lesson. To complete this activity, provide students with cards of pictures that have the focused onset or rime and a few other cards that do not. The teacher can show a picture, object, or just say the word and the students choose the card(s) that have that same onset or rime. For example, if the onset is /b/, then the teacher might show a picture of a bear and tell the students to find the pictures that starts with /b/ like *bear*. The students would then look through their cards and display (on their desk or holding it up) cards that start with /b/. For example, bird, bunny, ball, etc. If the lesson was on rime, the teacher might show a picture of a cat and tell students to select cards that end with /at/. Students might display *rat*, *fat*, *hat*, *mat*, or *bat*.

Elkonin Boxes

Elkonin boxes or sound boxes was first developed in 1963 by a Russian psychologist named Elkonin (Honig et al., 2018). Elkonin boxes are “a card with a picture and boxes that represent the number of phonemes in the picture name” (p. 156). This activity provides a way for students to visually see the number of phonemes in a word (Manyak, 2008). This lesson can be easily used with one syllable words that have two-, three-, four-, or five-phonemes in them. To conduct this activity, the teacher displays the Elkonin card like one pictured in Figure 1 along with a picture, for example, a *sun*. The teacher points to the picture and asks, *What is this?* (the sun). The teacher models pronouncing the sounds in the word and for each sound moving a paper circle into the box on the paper. The word *sun* has three phonemes: /s/, /u/, /n/. Always remember after segmenting or breaking down the word into its individual phonemes (sounds), to blend it all together again and say the word (*sun*).

Figure 1

Elkonin Boxes Examples



When working with Elkonin Boxes, do not use words with multiple irregularities or unpredictable phoneme-grapheme correspondences. When working with younger students, encourage accuracy by having the Elkonin cards with only the correct number of boxes (*sun* would have three boxes for the three phonemes like the left side of Figure 1). Older students with more accomplished phonemic awareness, can have more boxes than needed for the word (like the right side of Figure 1).

Phonics

Phonics is “instruction in the relationship between letters and the sounds they represent” or between graphemes and phonemes (Honig et al., 2018, p. 170). A grapheme is the written

representation of a phoneme. The grapheme *b* stands for the phoneme /b/, the grapheme *x* stands for the phoneme /ks/, and the grapheme *ch* stands for the phoneme /ch/. Because phonemic awareness deals only with the sounds or phonemes in the English language, another important concept in phonics is the Alphabetic Principle. This is defined as connecting letter shapes with the sounds they make (National Center on Improving Literacy, 2023). In SoR, spelling is incorporated into phonics instruction.

There are many research-based activities that can be used to help teach phonics skills. While many of the individual phonics concepts are grade specific (individual speech sounds, digraphs, blends, schwa, morphemes, affixes, contractions), these activities can be used with multiple concepts across several grade levels. These activities are 1) Sound Walls and 2) Word Ladders.

Sound Walls

Many teachers are familiar with word walls. However, researchers stress using sound walls instead of word walls (Novelli & Sayeski, 2022; Prescott, 2022). Sound walls are constructed similarly to word walls. However, instead of putting the words under the letter in the manner that they are spelled, they are placed by beginning sound. Under *Ff*, the teacher would place the words *fat*, *five*, *finger*, but also *phone* and *photo*. Teachers would then discuss with students the type of sound (*f* is a fricative sound and *k* is a stop sound) or how the sound is made in the mouth (placement of tongue, teeth and/or voiced or voiceless phonemes). In the older grades, words can be categorized by the focus of the lesson. For example, using the /f/ sound the words *fat*, *phone*, *graph*, and *puff* would be together for the spellings of the /f/ sound is *f*, *ph*, *gh*, and *ff*.

Word Ladders

Word Ladders were created by Timothy Rasinski to support students to manipulate phonemes to add, delete, substitute, or rearrange letters to create words that match the definition given. As can be seen in examples one and two of Figure 2, only one letter is changed to make the next word (Padak & Rasinski, 2009), but other more advanced variations are available for older students. The goal is for younger students to see how changing one or more letters creates a new word. In teacher-made word ladders, the teacher gives the first word, spelled correctly, to the students. With more advanced word ladders (like example 3), clues or definitions are used to help the students know which letters to add or remove to make the next word.

Figure 2

Word Ladder Examples

	Example 1	Example 2	Example 3 – more advanced
First word	Cat	dog	dish
Second word	Rat	log	dash
Third word	Ran	lag	slash
Fourth word	Ram	lap	slosh
Fifth word	Pam	cap	slob

The word ladders can keep going as long as you need them to go. In general, no longer than 10 or 11 words in any given word ladder.

Fluency

Like phonemic awareness and phonics, fluency, vocabulary, and comprehension must also be systematically and explicitly taught. Fluency research has shown that systematic explicit instruction is a very important part of the reading program and should not be skipped. Fluency is complex and multifaceted, it can be defined as “the accurate reading of connected text at a conversational rate with appropriate prosody” (Honig, Diamond, & Gutlohn, 2018, p. 322). Fluency has four components: accuracy, rate, automaticity, and prosody (Rasinski, 2012). Accuracy is the ability to decode correctly. Rate is reading text at a speed that models a conversational manner. Automaticity is the reading of words quickly and effortlessly in or out of context. Prosody is reading with expression. Prosody requires students to pay attention to intonation, stress, and expression. Intonation is using pitch and timbre to accent the rise and fall of the voice while reading aloud. Stress is using length and loudness to emphasize important sounds or words. Expression is used to show emotion and to keep the audience interested. Activities for vocabulary instruction include: 1) Read Alouds, 2) Echo Reading, and 3) Choral Reading.

Read Alouds

There are several ways Read Alouds can increase fluency and comprehension (Wright, 2014). First, it is important for all students to hear a model of good fluent reading. This model can be demonstrated from hearing teachers or capable peers reading accurately and with prosody or expression. Another way Read Alouds can increase fluency is when there is a word or sentence that is repeated in the story. The students seem to naturally pick up on the repetition and start to say the repeated word or sentence altogether in a fluent manner. For example, during a Read Aloud of *The Three Little Pigs*, the students might chime in on the repeated phrase “I’ll huff and I’ll puff and I’ll blow your house down”. In addition, if the Read Aloud topic is covered in multiple readings, the teacher has the added benefit of increasing background knowledge, which benefits comprehension. Readers Theatre can be a natural outcome of Read Alouds (Heinemann, 2023; Rasinski et al., 2017). Teachers can ask a few students to prepare a section of the story to present to the class during the read aloud. This activity can add more fluency practice into the lesson. It can also add some enthusiasm to the read aloud lesson that increases student engagement. Have students choose a small section of the book with some dialog and add a narrator to read the parts that are not dialogue.

Echo Reading

Teachers can model fluency and help students improve in this area by a strategy called “Echo Reading.” In Echo Reading, the teacher reads aloud either a line or a sentence explicitly modeling good fluency. Then the students echo back using the same rate and prosody modeled by the teacher. The teacher chooses a story for a Read Aloud such as *Mufaro’s Beautiful Daughters* by John Steptoe (1987). In this story when haughty Manyara speaks to kind Nyasha, the teacher could read aloud in a sarcastic tone: “Because everyone talks about how kind *you* are, and they praise everything you do” modeling an arrogant attitude. Students have many opportunities to practice fluency when participating in Echo Reading.

Choral Reading

Teachers often use choral reading to help students build fluency. Choral reading is reading aloud in unison as a whole class or small group (Paige, 2011). Besides helping to increase fluency, choral reading also builds self-confidence and motivation. Choral reading may be used for reading poems. An example is found in “Annabelle Lee” by Edgar Allen Poe or “Stopping by the Woods on a Snowy Eve” by Robert Frost. Complexity can be added by dividing students into 2 or 3 groups and assigning certain words or lines to different groups. This concept can be seen in the following first stanza:

Teacher: Whose woods these are I think I know.
 Group 1: His house is in the village though;
 Group 2: He will not see me stopping here
 Group 3: To watch his woods fill up with snow.

Vocabulary

The knowledge of words and their meanings is the very definition of vocabulary (Honig et al., 2018). Without knowing the meanings of words, perfect decoding and phonics skills are worthless. How many teachers have had students who can decode and read a passage fluently, but do not demonstrate any understanding of what the passage means? Since comprehension is the end goal of all literacy instruction, the teacher must not stop with just phonics.

Lehr et. al (2004) discuss using a generative or schematic approach to vocabulary development. This approach involves helping students recognize word families and using derivational relationships to help students determine the meaning of unknown words as well as how to spell words (i.e.: wise – wisdom). Researchers have found that using a direct teaching of word learning strategies increases a students’ ability to be independent word learners. These strategies include using dictionaries, identifying and using appropriate context clues, and morphology.

While students do acquire words outside of school, teachers should teach the key vocabulary for the story or content area. This vocabulary should be taught explicitly and systematically while also increasing a student’s word consciousness. Activities for vocabulary instruction include 1) Hink Pinks, Hinky Pinky, and Hinkety Pinkety, 2) Word-Part Clue Evaluation, and 3) the T-FIVE Model.

Hink Pinks, Hinky Pinky, and Hinkety, Pinkety

Hink Pinks, Hinky Pinky, and Hinkety Pinkety are phonograms or a pair of rhyming words that are answers to a riddle (Buchoff, 1996; Cavanaugh, 2011). This activity helps develop word consciousness (Lehr et al., 2004). A hink pink is a pair of one-syllable rhyming words. For example, the riddle *What is an overweight animal with fur* can have the answer *fat cat* or *fat rat*. A hinky pinky is a pair of two-syllable rhyming words that answer the riddle. An example would be, *What is a young cat in love?* with the answer being *smitten kitten*. Finally, the hinkety pinkety activity has riddle answers that are three-syllables. The riddle *What do you call two drums talking?* would be *percussion discussion*. Students not only need to know how many syllables are in words (a phonological awareness skill) but also the meanings of the words. Once students become familiar with this activity, they enjoy creating their own riddles to share with their peers and their teacher.

Word-Part Clue Evaluation

Another vocabulary activity that also addresses morphology is Word-Part Clue Evaluation. Researchers recommend that teachers teach derivational affixes because they usually are regular in meaning (Edwards et.al, 2004). In this activity, students are given or draw a five-column chart like the one pictured in Figure 3. Students analyze the words given to determine if the word has an affix or not and if the affix influences the meaning of the word.

Figure 3

Word-Part Clue Evaluation for Prefixes

Word	Does Not Have Prefix and Root Word	Has Prefix and Root Word	Prefix + Root Word = Meaning	Prefix + Root Word \neq Meaning
united	u + nit + ed			
increase		in + crease		to become greater in number
infinite		in + finite	not finite, not limited	

T-Five Model

The T-FIVE Model is a way for teachers to ask open ended higher order thinking and probing type questions (Knaebel et al., 2015). T-FIVE is an acronym that stands for Topic, Fact, Inference, Vocabulary, and Evaluation. More details about the T-FIVE model can be found in the Comprehension section below. While all these question types can be asked after reading, vocabulary questions can and should be asked during reading. Vocabulary words should be carefully selected before reading and definitions should be shared for words as they are used in context. This is an important step to scaffold word meaning in order to build background knowledge. Greater background knowledge increases comprehension.

Comprehension

The ultimate goal of literacy instruction, or indeed any instruction, is comprehension. Without it, reading is a useless use of time. Being able to read fluently does not automatically mean the student understands what is read. Read the following excerpt:

A handle service can be composed of one or more sites. Sites can be primary or mirror. Mirror sites replicate the handle records stored on the primary sites. Typically, a service has a single primary, but it is possible to have a service with multiple primaries which then replicate from each other. Replication as implemented in the software offers eventual consistency. (Sample Templates, 2023, para. 3).

While each of these words are easily decoded by proficient readers, would you be able to discuss the topic showing deep understanding?

Comprehension is defined by Harris and Hodges (1995) as the reader having a reciprocal interchange with the text as they build an understanding of the message of the text. The building blocks of comprehension are: fluency, vocabulary, world knowledge, comprehension strategies, and motivation (Honig et al., 2018).

Activities to help you teach comprehension in the regular classroom include 1) Question-Answer Relationship (QAR), 2) Think-Aloud, 3) the T-FIVE Model, and 4) Teaching Inferences. Remember, the key to teaching is systematic, explicit instruction.

Question-Answer Relationship (QAR)

According to NRP (2000), teaching students how to answer comprehension questions effectively is an important part of instruction. QAR is a technique that was developed by Taffy Raphael (1986). This strategy teaches students how to approach answering questions based on text they just read. In QAR there are 4 types of questions in 2 categories. The first category of *In the Text* has the two types of questions called *Right There* and *Think and Search*. The second category of *In My Head* has two types of questions called *Author and Me* and *On My Own*. This strategy provides students and teachers with common terminology for discussing how to answer questions.

Figure 4

QAR examples for “Last Stop on Market Street”

In the Text	In My Head
Right There What are CJ and Nana doing at the soup kitchen?	Author and Me What was CJ using to “see” these things when his eyes were closed?
Think and Search Who is Nana?	On My Own How can you serve others?

Think-Aloud

Think Aloud activities are good activities that teachers can use to demonstrate how good readers think when they are reading connected text (Block & Isreal, 2004). In this strategy, the teacher demonstrates while the students watch and listen. In this strategy the questions are rhetorical, and the teacher answers the questions aloud. The best time for a think aloud is directly after explicit instruction (Smeckens, 2019). After the direct instruction, the teacher uses a think aloud to “reveal how to execute the new skill as plainly, clearly, and precisely as possible” (para. 1).

Using *Charlotte’s Web* (1952) to teach similes, read aloud the first paragraph of chapter 11. Then state:

Teacher: “The grass looked like a magic carpet.” [stop reading and look up at the ceiling].

Teacher: “I wonder why the author tells us the grass was a magic flying carpet.” [pause but do not call on students to answer]

Teacher: I don’t think the grass is really a magic carpet. So, what do I think the author means?

Teacher: To answer my own question, I am looking at the words the author uses.

Teacher: Wait! I should stop and reread from the beginning on the paragraph [reread the paragraph].

Teacher: I wonder if the grass would look like a magic carpet from the fog and dew.

Teacher: I remember yesterday when we were learning about similes. Similes compare two things using the word *like* or *as*.

Teacher: I see the word like in that sentence. [reread the sentence again]

Teacher: I know! The author is using a simile to show that the wet grass was shiny and bright like a magic carpet might be.

T-Five Model

The T-FIVE Model is a way for teachers to ask open ended higher order thinking and probing type questions (Knaebel, Bauserman, & Quatroche, 2015). The researchers found that practice over time increased comprehension scores, especially on the higher order thinking and probing questions. As stated above, T-FIVE is an acronym that stands for Topic, Fact, Inference, Vocabulary, and Evaluation. It is important to plan ahead what questions you will be asking and to make sure that the students cannot answer the question with a *yes* or a *no*. The following chart shows examples of each type of question.

Figure 4

Examples of T-FIVE Questions

T-FIVE	Example Questions based on <i>Mufaro's Beautiful Daughters: An African Tale</i> by John Steptoe	Example Questions based on Chapter 23 of <i>I am Malala</i> by Malala Yousafzai
Inference	<ul style="list-style-type: none"> What would have happened if Manyara had waited and gone to the king with her family? 	<ul style="list-style-type: none"> Malala always ran late. What would have happened if Malala had missed the bus that day?
Vocabulary	<ul style="list-style-type: none"> What does "temper" mean? What is "millet"? 	<ul style="list-style-type: none"> The author uses the word "dyna." What does this word mean in the story?
Fact	<ul style="list-style-type: none"> Who did Manyara meet first on her way to the king? Who did Nyasha sing to in her garden? 	<ul style="list-style-type: none"> What exam was Malala studying for? What was the name of the snack factory they pass?
Topic	<ul style="list-style-type: none"> What was this story about? What was the best part of this story? 	<ul style="list-style-type: none"> What happened in this chapter? What was the main idea?
Evaluation	<ul style="list-style-type: none"> What would you do if you were traveling with your family, and you met a boy who needed some food? 	<ul style="list-style-type: none"> What would you have done if you were in the same position as Malala?

Teaching Inferences

Teaching inferences is a very important skill that can enhance student comprehension. As little as 10 weeks of practice can help students make big gains on comprehension assessments (Hwang, et al, 2023). Inferencing involves activation of background knowledge and integration of background knowledge with what the author tells us to create an inference. Inferencing can be taught during Read Aloud lessons (see above) using T-FIVE questions (see inferencing in chart above) and Think Alouds (see script above) as strategies for explicit instruction and practice. Read Aloud texts should be carefully selected so that they offer opportunities for inferencing. Inference questions should be carefully planned before sharing the reading (see T-FIVE questions). Scaffolding and Think-Alouds are important strategies to teach inferencing.

Conclusion

In conclusion, the use of the activities shared in this article, if delivered in a systematic, explicit manner, should be tools for teachers to use to help the students in their classroom to comprehend. If students are reading and comprehending, then the downward trend on the average fourth grade NAEP scores should halt and start to go upward. And while this upward trend in a national assessment is nice, the real accomplishment and point of pride will be Hoosiers who can read.

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2023 Indiana Science Trade Book Annual Reading List (IN-STAR): Teaching Science Through Literature

Jeff Thomas and Joyce Gulley
University of Southern Indiana

Kristin Rearden
University of Tennessee

Abstract

The 2023 IN-STAR List is a resource for Indiana teachers who wish to integrate children's literature and science. Several nationally recognized lists are produced to help teachers identify books that can be used in elementary classrooms, but these lists don't align their selections to grade levels and Indiana's K-5 science standards. The IN-STAR list bridges that gap by identifying two high-quality titles per grade level and honorable mention selections for the primary and intermediate grade bands. Books were published in 2022 and are vetted using a set of expectations for scientific content and applicability to the elementary classroom. A brief description and ISBN number are offered so that the reader may consider classroom connections and work with local libraries to acquire books.

The 2023 Indiana Science Trade Book Annual Reading List (IN-STAR) features unique selections which provide thought-provoking connections between rich literature and science content. The criteria and process to identify books has been previously described (Thomas & Gulley, 2012). Selections meet the following criteria:

1. The book has substantial science content.
2. The information is clear, accurate, and up to date.
3. Theories and facts are clearly distinguished.
4. Facts are not oversimplified to the point where the information is misleading.
5. Generalizations are supported by facts and significant facts are not omitted.
6. Books are free of gender, ethnic, and socioeconomic bias.
7. Information can be connected to the Indiana Science Standards for grades K-5.
8. Books are readily available in public libraries or bookstores.
9. Books have received at least one positive review in one of the identified professional journals: *Booklist*, *Bulletin of the Center for Children's Books*, *Horn Book*, *Kirkus Reviews*, *Publishers Weekly*, *School Library Journal*, and *Science and Children*.

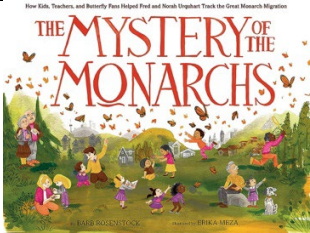
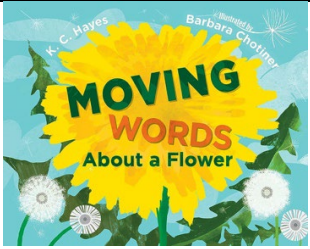
Items one through five are critical because they help teachers select quality science-focused books for classroom use. Item six ensures a teacher's universal responsibility to promote classrooms and resources which promote a variety of populations and cultures. Items seven through nine ensure the selections are high quality and easily attainable by classroom teachers.

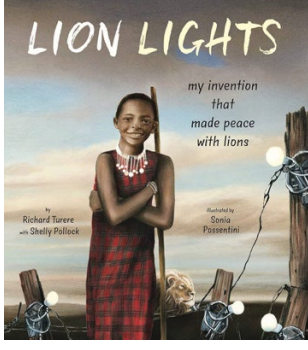
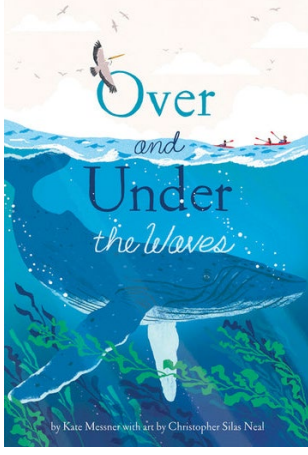
Chosen titles were published in the preceding year. Books are selected through a continuous review of resources highlighting new publications in children’s literature. As interesting and appropriate books are discovered, they are purchased or acquired through local libraries for review. Their content is assessed for the nine criteria and if they address the science content listed in the Indiana Academic Standards for each grade level. The reading level of books is considered when aligning them with grade levels.

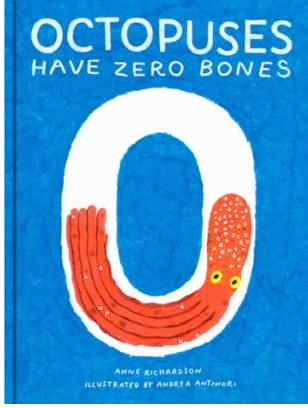
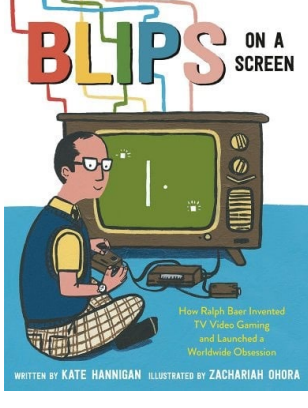
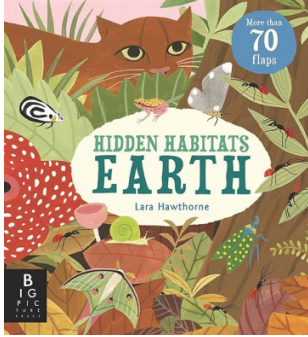

Because teachers work with students along the reading continuum, it can be beneficial to explore selections at adjacent grade levels. Some titles might be best suited as classroom read aloud selections, while others could be suited for independent reading. The authors anticipate that teachers will employ the spectrum of reading strategies while using these titles. Examples include retelling lessons, identifying key science vocabulary when summarizing content, and using the material to explore the nature of science or engineering by characters. Below are overviews of this year’s winning selections.

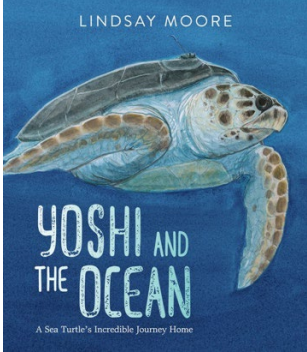
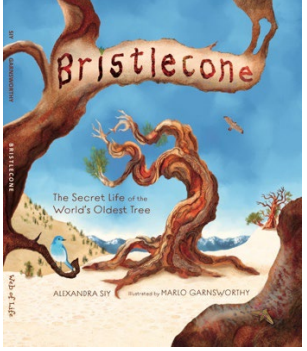
The 2023 Indiana Science Trade Book Annual Reading List (IN-STAR)

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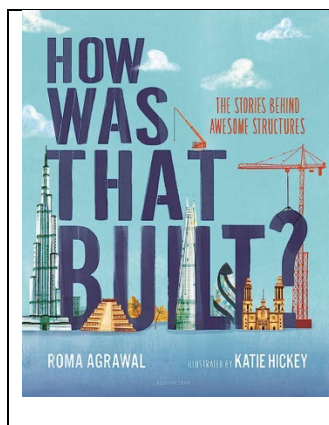
Kindergarten	
	<p>THE MYSTERY OF THE MONARCHS: HOW KIDS, TEACHERS, AND BUTTERFLY FANS HELPED FRED AND NORAH URQUHART TRACK THE GREAT MONARCH MIGRATION. 2022. Barb Renstock. Illus. Erika Meza. Knopf Books for Young Readers. 40 pp. ISBN-13: 978-1984829566. True-life account of the discovery of monarch migration to Mexico and how the scientists asked questions as they went about their work. The book is a wonderful companion to butterfly life cycle lessons common to the primary curriculum. STANDARD: LIFE SCIENCE</p>
	<p>MOVING WORDS ABOUT A FLOWER. 2022. K.C. Hayes. Illus. Barbara Chotiner. Charlesbridge. 40 pp. ISBN-13: 978-1623541651. Using shape poetry, the author creatively shares the life cycle of a dandelion. If your students are new to shape poetry, they will enjoy watching how the words, fonts, and style enhance telling the story. STANDARD: LIFE SCIENCE</p>
First Grade	

 <p>HOW ANIMALS USE TOOLS THE ANIMAL TOOLKIT STEVE JENKINS & ROBIN PAGE</p>	<p>THE ANIMAL TOOLKIT. 2022. Steve Jenkins & Robin Page. Clarion Books. 32 pp. ISBN-13: 978-0358244448. Another winner from Jenkins and Page. Students will instantly make the connection between how animals use tools and humans use tools. The tools to technology connection will also support teaching fundamentals of what engineers do. STANDARD: LIFE SCIENCE</p>
 <p>LION LIGHTS my invention that made peace with lions by Richard Turere and Shelly Pollock Illustrated by Sonia Possentini</p>	<p>LION LIGHTS: MY INVENTION THAT MADE PEACE WITH LIONS. 2022. Richard Turere & Shelly Pollock. Illus. Sonia Maria Luce Possentini. Tibury House Publishers. 32 pp. ISBN-13: 978-0884488859. This title highlights the real-life story about how a 12-year-old Kenyan helped save his family’s cattle from lions even when local adults and outside experts could not. Richard created a prototype from a solar panel, battery, and small light bulbs. The technology was adopted by his community and propelled him to international acclaim! STANDARD: ENGINEERING</p>
<p>Second Grade</p>	
 <p>Over and Under the Waves by Kate Messner with art by Christopher Silas Neal</p>	<p>OVER AND UNDER THE WAVES. 2022. Kate Messner. Illus. Christopher Neal. Chronicle Books. 56 pp. ISBN-13: 978-1797203478. Another successful contribution to this long-running series. Told through a family’s day adventure paddling in a bay, the title will help teachers share the types of bodies of water, and the life which inhabits them, outside Indiana. Dynamic imagery from above the water, at the water level, and below the water’s surface heightens the reader’s enjoyment. STANDARD: EARTH AND SPACE SCIENCE and LIFE SCIENCE</p>

	<p>OCTOPUSES HAVE ZERO BONES. 2022. Anne Richardson. Illus. Andrea Antinori. Tra Publishing. 68 pp. ISBN-13: 978-1735311524. This counting book is fun and feeds the reader’s curiosity to start making observations and asking science and math questions about the world around them. While the reading level targets younger readers, the mathematics connections might be more appropriate for older students. STANDARD: LIFE SCIENCE</p>
<p>Third Grade</p>	
	<p>BLIPS ON A SCREEN: HOW RALPH BAER INVENTED TV VIDEO GAMING AND LAUNCHED A WORLDWIDE OBSESSION. 2022. Kate Hannigan. Illus. Zachariah Ohora. Knopf Books for Young Readers. 48 pp. ISBN-13: 978-0593306710. Told within the historical context that starts with his family’s flight from Nazi Germany, the story of Ralph Baer’s determination to turn televisions from passive viewing gadgets to entertaining technologies will fascinate young readers who have never lived in a world without gaming devices. Vocabulary such as “prototype” are contextually used in the text, and end pages provide additional information about Baer’s other inventions. STANDARD: ENGINEERING</p>
	<p>HIDDEN HABITATS: EARTH (SMALL WORLDS). 2022. Camilla de la Bedoyere. Illus. Lara Hawthorne. Big Picture Press. 18 pp. ISBN-13: 978-1536226690. How do plants and animals survive in diverse habitats? This lift-a-flap book showcases the symbiotic relationships between organisms that allow them to thrive in a variety of terrestrial habitats. Full-color illustrations provide realistic, yet not overly technical, depictions of the organisms. STANDARD: LIFE SCIENCE</p>
<p>Fourth Grade</p>	
	<p>BLAST OFF: HOW MARY SHERMAN MORGAN FUELED AMERICA INTO SPACE. 2022. Suzanne Slade. Illus. Sally W. Comport. Calkins Creek. 48 pp. ISBN-13: 978-1684372416. This biography chronicles Mary Sherman Morgan’s life, starting from her childhood on a North Dakota farm to eventually supporting the NASA space program through her innovative fuel design. The importance of perseverance is prevalent throughout the text. STANDARD: ENGINEERING</p>

	<p>LUMINOUS: LIVING THINGS THAT LIGHT UP THE NIGHT. 2022. Julia Kuo. Illus. Julia Kuo. Greystone Kids. 44 pp. ISBN-13: 978-1771648882. Useful as a resource for both physical science and life science concepts, this book’s multilayered text extends the content to provide intermediate students with an opportunity to explore the often-hidden world of organisms that possess the fascinating structural capability of generating light. Sharply colored illustrations against the black background add to the visual appeal. STANDARD: LIFE SCIENCE and PHYSICAL SCIENCE</p>
<p>Fifth Grade</p>	
	<p>YOSHI AND THE OCEAN: A SEA TURTLE’S INCREDIBLE JOURNEY HOME. 2022. Lindsay Moore. Illus. Lindsay Moore. Greenwillow Books. 64 pp. ISBN-13: 978-0063060982. Watercolor illustrations complement the narrative of the journey of Yoshi, an injured loggerhead sea turtle who traveled 25,000 miles home after being rehabilitated and released. End pages provide valuable information about Yoshi’s travels and characteristics of sea turtles. STANDARD: EARTH AND SPACE SCIENCE</p>
	<p>BRISTLECONE: THE SECRET LIFE OF THE WORLD’S OLDEST TREE. 2022. Alexandra Siy. Illus. Marlo Garnsworthy. Web of Life Children’s Books. 32 pp. ISBN-13: 978-1970039030. Locked away in the bristlecone’s tree rings is the historical record of natural disasters and climate changes over a 5,000-year period. This beautifully illustrated text reveals how environmental changes affect organisms. The author’s website offers multiple resources for incorporating this book into science and ELA lessons. STANDARD: LIFE SCIENCE</p>
<p>Primary Honorable Mention</p>	
	<p>COPYCAT: NATURE-INSPIRED DESIGN AROUND THE WORLD. 2022. Christy Hale. Lee and Low Books. 40 pp. ISBN-13: 978-1643792309. This book will certainly help spark creativity among your students. Numerous examples show how inventors used biomimicry for inspiration in their quest to solve problems and meet the wants and needs of society. Teachers can use the book’s Tanka poetry format to inspire writers. STANDARD: ENGINEERING and LIFE SCIENCE</p>

	<p>THE DEPTH OF THE LAKE AND THE HEIGHT OF THE SKY. 2022. Jihyun Kim. Floris Books. 48 pp. ISBN-13: 978-1782507420. This wordless book shares the story of a boy and his dog journeying from the city to his grandparents’ house in the country. Along the way he discovers the wonders of countryside habitats beautifully revealed using monochromatic illustrations. STANDARD: EARTH AND SPACE SCIENCE</p>
	<p>FOOTPRINTS ACROSS THE PLANET. 2022. Jennifer Swanson. Reycraft Books. 40 pp. ISBN-13: 978-1478876038. Close-up images punctuate this book to share the variety of animal footprints and the small and big imprints they leave. Connections to humans will help students compare and contrast their feet to animals’ feet (physically and metaphorically). STANDARD: LIFE SCIENCE and EARTH AND SPACE SCIENCE</p>
<p>Intermediate Honorable Mention</p>	
	<p>BREAKING THROUGH THE CLOUDS: THE SOMETIMES TURBULENT LIFE OF METEOROLOGIST JOANNE SIMPSON. 2022. Sandra Nickel. Illus. Helena Perez Garcia. Harry N. Abrams. 48 pp. ISBN-13: 978-1419749568. As the first woman to earn a doctorate in meteorology, Joanne Simpson doggedly pursued her interest in learning about weather as a pilot, Air Force instructor, and ultimately as a university student. A combination of whimsical and content-based illustrations supports the text. STANDARD: EARTH AND SPACE SCIENCE</p>
	<p>TOTALITY: AN ECLIPSE GUIDE IN RHYME AND SCIENCE. 2022. Jeffery Bennett. Big Kid Science. 32 pp. ISBN-13: 978-1937548865. Two-line rhymes are extended by sidebar text, illustrations, diagrams, and photos to provide a wealth of information about eclipses. This book is particularly useful with both annular and total solar eclipses occurring during the 2023-24 school year. End pages include a glossary and suggested classroom activities. STANDARD: EARTH AND SPACE SCIENCE.</p>



HOW WAS THAT BUILT? THE STORIES BEHIND AWESOME STRUCTURES. 2022. Roma Agrawal. Illus. Katie Hickey. Bloomsbury Children’s Books. 80 pp. ISBN-13: 978-154760929. Organized in “How to…” sections, such as “How to Build Across” for types of bridges, this non-narrative informational book combines physics, engineering, geography, and history in text that will engage anyone who has asked that simple question about well-known and lesser-known structures. Colorful sketches enhance text.

STANDARDS: PHYSICAL SCIENCE AND ENGINEERING

References

Thomas, J., & Gulley, J. (2012). Spotlight on science: Introducing the Indiana science trade book annual reading list. *The Indiana Reading Journal*, 45(1), 31-35.

Resources

Thomas, J., Gulley, G., & Rearden, K. (2023, October 28). *INSTAR booklist by year*. University of Southern Indiana. <https://www.usi.edu/science/southwest-indiana-stem/instar-book-list>

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Jeff Thomas, University of Southern Indiana, Professor of Teacher Education, works with emerging and current elementary teachers to promote integration of inquiry-based science, children’s literature, and technology.

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Invited Column
Developing Empathy: Changing the World Through Reading

Christy Moore
Taylor University

Reading and discussing children's literature can develop the deepest form of comprehension: empathy. Empathy has the power to transform our readers and the communities they live in. It can be taught at early ages, even with our primary students, and is an authentic way to approach social and emotional learning.

Benefits of Read Alouds

According to multiple studies compiled by author and educator Emily Anderson (2022), the benefits of being read to are staggering. When read to, students build vocabulary, improve their comprehension and listening skills, reduce stress, strengthen fluency, and improve their working memory. When the discussion component is added, it allows students to also consider multiple perspectives, ethics, and morals; share feelings and strategies; and build relationships and **empathy**. Time spent reading to students is never time wasted.

Developing Empathy

Many experts, including Ellin Oliver Keene (2012), describe empathy as the deepest form of comprehension. Many of us can sympathize with others, but is that enough? Sympathy is to see someone's pain but to remain in our own place of comfort. Empathy, however, is feeling with that person and walking alongside and, in turn, connecting with them on a deeper level. In *Choice Words*, Peter H. Johnston (2004) relays a conversation he had with a first-year teacher who naively stated, "asking myself from time to time if it might be possible to teach English in such a way that people would stop killing each other." This thought struck me as impossible. But could experiencing difficult situations through the eyes of a character in a good book prepare our students to act with empathy and self-regulation in the future? Would the development of empathy prepare our students for life decisions that they may face?

These life decisions could be as common as how to act when someone says something unkind, when we have differing opinions, or when we can't find our favorite sneakers. They could also be more difficult life decisions such as, do we lie, steal, or hurt someone in order to survive? I experienced this myself as I read *See You at Harry's* by Jo Knowles. I wept as I read this book in my backyard swimming pool on Labor Day 2015. This fictional account walked through a family's response to the tragic death of a son and brother. The mother in this book grieved in private after losing one of her children while ignoring the rest of her grieving family, which ultimately damaged relationships. Little did I know that just one month later, I would lose my own sweet son suddenly, without warning. But because I had experienced this situation through the characters in this book, I was able to better navigate the long painful road of grief. In my situation, I chose to react the opposite of the mother character and I clung to my family who supported each other through this tragedy.

How Do We Get Started?


How do we go about teaching empathy and other social emotional competencies in our classrooms? Educator and author Maria Nichols (2019) describes this process in *Building Bigger Ideas: A Process for Teaching Purposeful Talk*. With the ever-increasing amount of communication through technology, our students need to develop the ability to discuss ideas and issues face to face. They need to be able to listen with the intent to build deeper ideas. Here they can wrestle with multiple perspectives by respectfully agreeing, disagreeing, and adding to one another's ideas. Dorn and Soffos (2006) lay out some steps to having deep conversations with students and developing empathy. After synthesizing these ideas, I developed the basic list below to start these deep conversations around literature. Choose great books where characters change and grow. See below for recommendations:

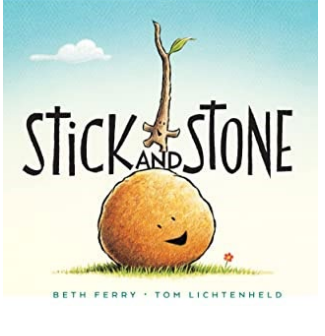
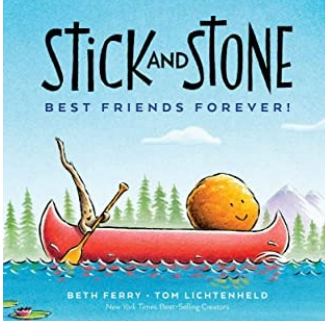
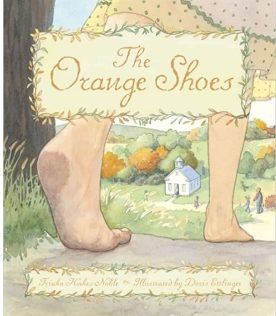
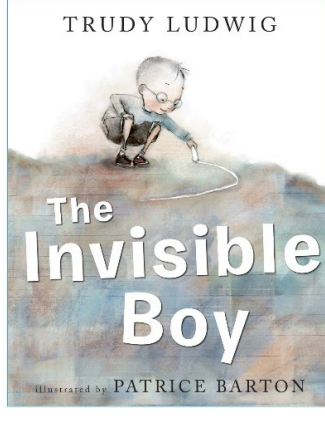
1. Read aloud with students **daily** with prosody and fluency.
2. After the read aloud, sit in a circle and discuss the meaning of the book and discover life lessons.
3. Teach students to make eye contact and listen with the intent to understand and build ideas.
4. Model the language of dialogue including agreeing and disagreeing with evidence. Use open-ended and higher-level questions such as: What are you thinking or wondering? What did you learn? Would you want to be this character's friend? Why or why not? How will you live your life differently because you have read this book?

Conclusion


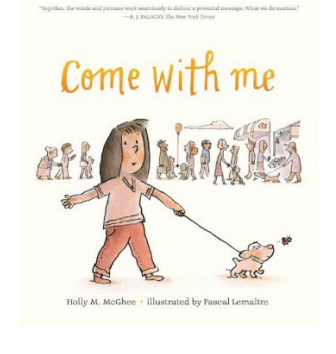
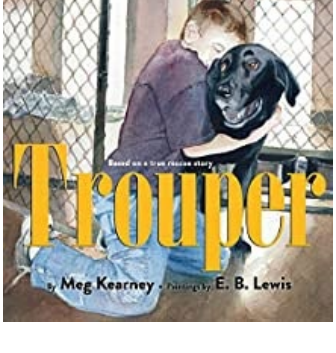

There is no denying that many of our students are struggling with the development of social and emotional competencies after enduring the COVID-19 pandemic. This is the time to use our instructional time and resources to address the building of these needed assets. Developing these SEL skills, especially empathy, could potentially change the world for our students and give all of us new possibilities.



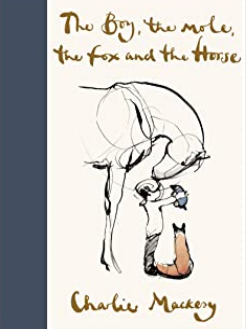
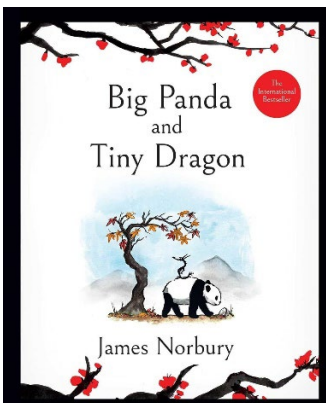
Book Recommendations for Teaching Empathy

Book	Author/Title/Publisher	Age Range	SEL Lessons that Develop the Ability to:
	O'Neill, A., & Huliska-Beith, L. (2002). <i>The Recess Queen</i> . Scholastic.	4–8-year-olds	<ul style="list-style-type: none"> - See other perspectives - Listen and communicate - Resolve conflict - Respect others - Understand feelings of others - Build healthy relationships - Feel and demonstrate empathy

	<p>Ferry, B., & Lichtenheld, T. (2017). <i>Stick and stone</i>. Clarion Books.</p>	<p>3–8-year-olds</p>	<ul style="list-style-type: none"> - Build friendships - Think critically - Self-regulate - Collaborate with others - Act with resilience - Feel and demonstrate empathy
	<p>Ferry, B., & Lichtenheld, T. (2021). <i>Stick and stone: Best friends forever!</i> Clarion Books.</p>	<p>3–8-year-olds</p>	<ul style="list-style-type: none"> - Build perseverance - Recognize and express emotions - Change your behavior - Forgive others - Create a sense of belonging - Achieve positive goals - Feel and demonstrate empathy
	<p>Noble, T. H., & Ettlinger, D. (2013). <i>The Orange Shoes</i>. Zaner-Bloser.</p>	<p>6–12-year-olds</p>	<ul style="list-style-type: none"> - Be content with what you have - Act with resilience - Understand feelings of others - Overcome obstacles - Understand your strengths - Feel and demonstrate empathy
	<p>Ludwig, T., & Barton, P. (2013). <i>The Invisible Boy</i>. Alfred A. Knopf.</p>	<p>5–10-year-olds</p>	<ul style="list-style-type: none"> - Understand and manage emotions - Feel and demonstrate empathy - Understand your strengths - Understand feelings of others - Self-regulate - Consider multiple perspectives - Collaborate

	<p>Laminack, L. L., & Cole, H. (2014). <i>Three Hens and a Peacock</i>. CNIB.</p>	<p>4–10-year-olds</p>	<ul style="list-style-type: none"> - Feel and demonstrate empathy - Understand your strengths - Connect and collaborate - Understand feelings of others - Consider multiple perspectives - Network to achieve goals
	<p>Laminack, L. L., & Cole, H. (2023). <i>Three Hens, a Peacock, and the Enormous Egg</i>. Margaret Quinlin Books.</p>	<p>4–10-year-olds</p>	<ul style="list-style-type: none"> - Problem solve in collaboration - Demonstrate self-confidence - Inquire - Consider multiple perspectives - Understand your strengths - Self-regulate - Care for others' needs - Communicate clearly - Feel and demonstrate empathy
	<p>Santat, D. (2017). <i>After the Fall: How Humpty Dumpty Got Back Up Again</i>. Roaring Brook Press.</p>	<p>4–10-year-olds</p>	<ul style="list-style-type: none"> - Be resilient - Demonstrate growth mindset - Awareness of own strengths - Understand and manage emotions - Show initiative - Self-regulate - Feel and demonstrate empathy
	<p>Laminack, L. L., & Soentpiet, C. K. (2023). <i>Saturdays and Teacakes</i>. Peachtree.</p>	<p>4–10-year-olds</p>	<ul style="list-style-type: none"> - Demonstrate integrity - Maintain positive relationships - Feel and demonstrate empathy - Demonstrate growth mindset - Demonstrate work ethic

	<p>Rylant, C., & Brown, K. (2000). <i>The Old Woman Who Named Things</i>. Voyager Books.</p>	<p>5-year-olds - adults</p>	<ul style="list-style-type: none"> - Build and maintain relationships - Feel and demonstrate empathy - Demonstrate growth mindset - Understand and manage emotions - Show initiative - Self-regulate - Care for others
	<p>McGhee, H. M., & Lemaître, P. (2017). <i>Come With Me</i>. G. P. Putnam's Sons.</p>	<p>5-year-olds - adults</p>	<ul style="list-style-type: none"> - Understand and manage emotions - Show initiative - Self-regulate - Care for others - Build positive relationships - Feel and demonstrate empathy - Demonstrate growth mindset
	<p>Kearney, M., & Lewis, E. B. (2015). <i>Trouper</i>. CNIB.</p>	<p>5-year-olds - adults</p>	<ul style="list-style-type: none"> - Consider multiple perspectives - Show initiative - Self-regulate - Care for others - Build positive relationships - Feel and demonstrate empathy - Demonstrate growth mindset
	<p>Klise, K., & Klise, M. S. (2017). <i>Stay: A Girl, a Dog, a Bucket List</i>. Macmillan Publishing Group, LLC.</p>	<p>4–12-year-olds</p>	<ul style="list-style-type: none"> - Maintain relationships - Feel and demonstrate empathy - Demonstrate growth mindset - Understand and manage emotions - Care for the needs of others - Problem solve to reach goal

	<p>Tsuchiya, Y. (1988). <i>Faithful Elephants</i>. Houghton Mifflin.</p>	<p>10-year-olds - adults</p>	<ul style="list-style-type: none"> - Consider multiple perspectives - Feel and demonstrate empathy - Understand feelings of others - Prioritize
	<p>Yamada, K., & Hurst, E. (2021). <i>Trying</i>. Compendium Inc.</p>	<p>All Ages</p>	<ul style="list-style-type: none"> - Feel and demonstrate empathy - Demonstrate growth mindset - Understand and manage emotions - Consider multiple perspectives - Show initiative - Self-regulate - Demonstrate persistence - Set positive goals - Problem solve
	<p>Mackesy, C. (2019). <i>The Boy, the Mole, the Fox and the Horse</i>. Ebury Press.</p>	<p>All Ages</p>	<ul style="list-style-type: none"> - Care for others - Create a sense of belongingness - Consider multiple perspectives - Feel and demonstrate empathy - Demonstrate growth mindset - Understand and manage emotions - Trust
	<p>Norbury, J. (2021). <i>Big panda and tiny dragon</i>. Michael Joseph.</p>	<p>All Ages</p>	<ul style="list-style-type: none"> - Self-regulate - Care for others - Build positive relationships - Feel and demonstrate empathy - Demonstrate growth mindset - Overcome obstacles - Be content - Be grateful - Collaborate

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Invited Column
Digital Storytelling: A Sacred Literacy Practice

Christina L. Cooper
Indiana University Kokomo

Individuals diversely engage with different literacies in multiple ways, and literacies that are close to the heart – ones that are personal, open spaces for sharing. Narrative practice allows for this space of sharing crucial events (Ivanova, 2014; Romero-Ivanova, Cook, and Faurete, 2022; Romero-Ivanova, 2020), and sometimes through the format of digital storytelling.

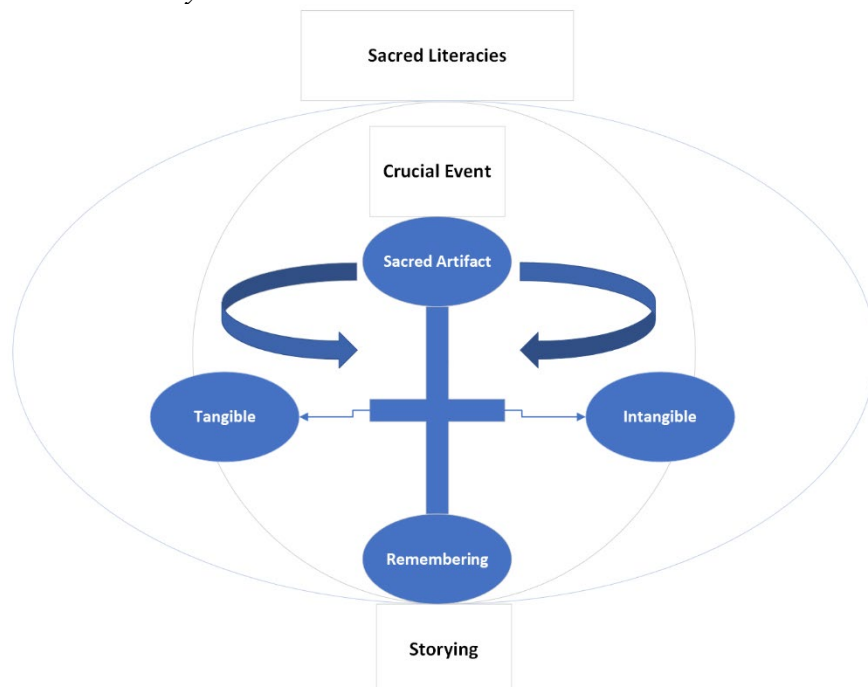
For the purposes of this article, I focus on digital storytelling as literacy practice – and one that is *sacred*. I will more fully develop this perspective in the following sections. Digital storytelling is the practice of telling a story – of relaying an experience – through the multimodal means of a digital application such as PowerPoint, iMovie, Canva, or any application the storyteller feels comfortable using. Seven elements make up a digital story: voice, musical soundtrack, the dramatic question, point of view, economy of the story, emotional content, and pacing (Dreon *et al*, 2011).

A Theory of Sacred Literacies

Individuals naturally imbed storytelling into their lives in different ways, and some literacy practices, such as storytelling are sacred by their very nature of being held significantly important (Ivanova, 2014) by the individual. Below, is an image that shows the process of storying as a sacred literacy.

Figure 1

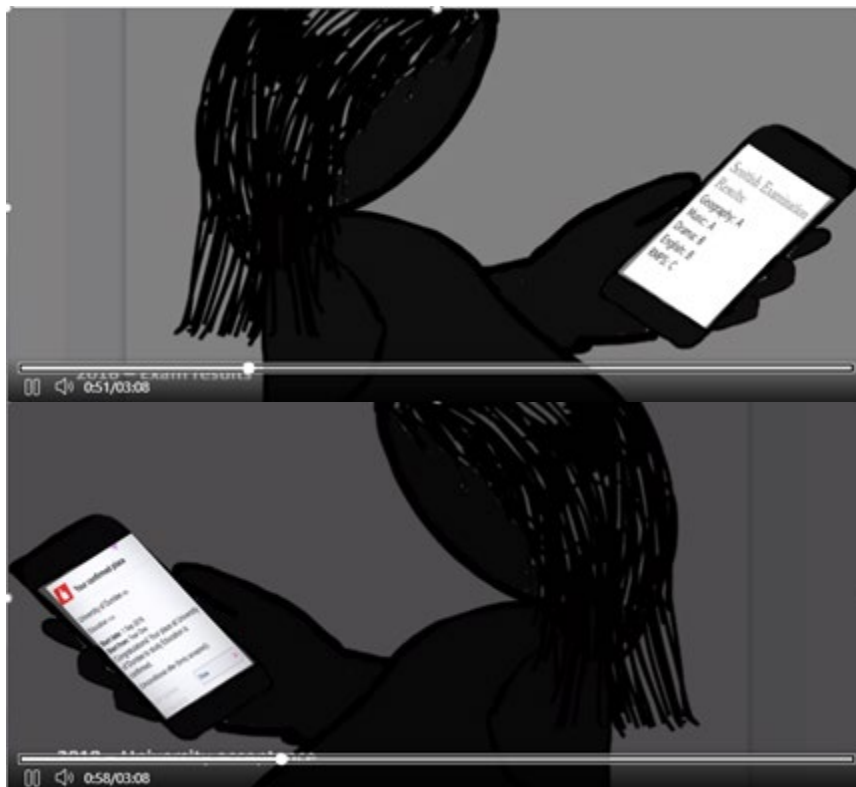
Storying as a Sacred Literacy



In this visual, the sacred literacy practice – and for the purposes of this article – storying a crucial experience, involves sacred artifacts. Sacred artifacts are tangible objects (ones physically imbedded in a person’s life) or objects that are intangible (ones remembered that once physically existed in a person’s life) as connectors to the remembering of a crucial experience, an experience that significantly impacts a person’s life (Romero-Ivanova, 2020). Cara (pseudonym), a participant in my research study, storied her experiences in college as a teacher education student at the University of Dundee, Scotland. In her storytelling of her experiences, she noted two remembered artifacts of her grade report and degree plan, which she was able to digitally draw for her digital story she shared with me summer 2022.

Figure 2

Cara’s Grades & Degree Plan as an Education Student



The Critical Nature of Digital Storytelling

“Narratives...can be used as entry points”
-Romero-Ivanova, 2020

Digital stories are entry points into lives and experiences because they are visually engaging, involve the uses of a voiceover (or text), music, and other emotive devices such as animation, and digital artifacts such as photographs. In the above section, I shared screenshots of Cara’s digital story which included remembered artifacts of her grades report and degree plan, along with the digital drawings she created. The artifacts along with the voiceover, music, and other emotive devices demonstrated a critical literacy practice. Digital storytelling as a critical literacy

practice mediates ideologies and social issues that matter beyond just the individual's storying of their experiences. Cara's story mediated the tensions and anxieties related to the expected performances and expectations of a university student, and specifically a teacher education candidate. The greater meaning of her story – the dramatic question related to how one manages with tensions, expectations, and anxieties to perform well during their college experiences.

Digital Storytelling is an Empowering Practice for Un-silencing

Individuals can and do story their lives in different ways. Casual conversations in the classroom space can lead to engaging with digital storytelling practices. One such conversation occurred when I began storying my own experiences with students who had come to a digital storytelling workshop at the University of Dundee, Scotland in May 2023. Below are synopses of their sharing, which have since been the framework for creating their own digital stories.

Andrew's Story: The Trauma of Loss

Andrew: At the tender age of six years old, my life changed forever. It was not due to discovering a new hobby that fueled my passions or by listening to a new artist who expanded my horizons. It was at this age that I lost my mother to cancer. Being able to lay out my journey in the storytelling format also led me to further appreciating the improvements that I have made over the course of my life.

Lynsey's Story: Listening to Young Children's Voices through Digital Storytelling

Lynsey: I incorporated digital storytelling into one of my research projects. I was working with a primary school in Scotland, to support teachers to listen to children (aged 5-6yrs) through a range of developmentally appropriate and creative ways. Given that this digital story was shared widely with children's families and the school community, it was essential that the narrative presented was one which the children themselves were happy to be told.

Creating a Space to Honor Students' Stories

1. Allow students a narrative space in your class to story their experiences. This "space" can be a simple round-robin story-sharing time, a writing center, daily narrative writing time, a spoken word performance time, or any space that is conducive to them sharing.
2. Story-share your own story first.
3. Keep story-sharing completely open to what students want to share/feel comfortable sharing AND allow private or small group sharing as options, as opposed to only sharing whole group.
4. Have a framework for encouraging students to share multimodally, such as in digital storytelling in which stories come alive with images, colors, a voiceover, and other engaging digital aspects.

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Indiana Literacy Journal

The *Indiana Literacy Journal* is the peer-reviewed journal of the Indiana State Literacy Association, which is composed of and serves classroom teachers, literacy specialists, educational leaders, teacher educators, and university faculty. The journal publishes on diverse topics related to literacy, including reading, writing, speaking, listening, viewing, visually representing, technology, and literature for children and young adults. Submissions are invited in any of the categories below, though we are particularly interested in manuscripts that connect literacy and social justice, address new literacies (e.g., technology, graphic novels, podcasts, etc.), current literacy legislation, and other literacy topics relevant to the state of Indiana.

Our Spring 2024 issue is an open-themed call, so we welcome submissions on a variety of topics and methods.

Deadline for submission: February 1st, 2023

Bridging Research and Practice Articles

Articles submitted in this category present original descriptions of research-based instruction that improves the literacy learning of students ranging from birth to college age. Articles describing research-based practices in literacy teacher education will also be considered. Manuscripts in this category must include practical steps to guide readers in applying the research to their practice. Manuscript submissions should include APA formatted references to the relevant research literature and must not exceed 5,000 words (including tables, figures and appendices; excluding reference list) in 12-point font and left-aligned. Any charts or graphics must be of high-quality and in black and white. These manuscripts undergo blind review by members of the journal's editorial review board.

Voices from the Region

Articles submitted in this category will showcase evidence-based literacy practices being implemented throughout the state and region in such varied spaces as classrooms, districts, libraries, after school programs, online schools, homes, daycares, preschools, etc.. We are specifically interested in submissions from practitioners who can share tips and ideas about what is working in their context, why they are engaging in these ideas, and how others could do this, too. Our goal is to hear from a range of practitioners in and around the state who are interested in literacy. Manuscripts in this category should begin with an introduction to the authors and the context of their work. Please also include APA formatted references to the relevant research literature, if appropriate to the piece. Manuscript submissions should be between 750 and 1500 words (including tables, figures and appendices; excluding reference list), double-spaced, and in 12-point font and left-aligned. Any charts or graphics must be of high-quality and in black and white. These manuscripts undergo blind review by members of the journal's editorial review board.

Visual Artifacts and Graphics

Submissions in this category share visual artifacts of literacy teaching practices through photos of teachers and students engaging in literacy, literacy projects, literacy centers, and artifacts of student learning. Each image should be clear, in focus, of a high resolution/quality, and sent as a

full-size jpeg or tiff file attachment, accompanied by a brief, 50-100 word description. Documents must be scanned, not photographed; the latter will not be of high enough quality for publication. By submitting an item in this category, the individual indicates that he/she has obtained consent from the district, school, teacher, parent, and child to use the image for publication. The journal's editorial team reviews submissions in this category

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