

From Blocks to Blueprints: Using the Science of Learning to Strengthen Science of Reading Instruction

Carla Williams

University of Central Missouri, Warrensburg, MO

ABSTRACT

Teachers bring thoughtful, evidence-based elements into literacy lessons, and many plans capture that thinking in detail. Blocks to Blueprints is a streamlined 10–12-minute planning routine that helps teachers convert lesson blocks (instructional segments) into a usable one-page blueprint (a tight plan teachers can teach from and revise). The routine draws on Science of Learning principles—reducing extraneous cognitive load, using worked examples, and embedding retrieval practice—while protecting Science of Reading essentials such as explicit, systematic instruction and cumulative review. Teachers map a lesson into five non-negotiable instructional blocks, then translate each block into brief teacher language, observable student actions, and a quick evidence check. The result is a plan that is easier to teach and easier to improve. This article includes a printable one-page template, an example for grades 1–2, and a brief adaptation for grades 3–5 to demonstrate how the approach can transfer across grade levels.

KEYWORDS

science of learning; science of reading; cognitive load; retrieval practice; explicit instruction; lesson planning

Teachers' best literacy ideas deserve lesson designs that can hold up in the messy middle of real classrooms. When lesson plans reduce cognitive load and make essential instructional elements visible, teachers are more likely to enact instruction as intended. The Science of Learning reminds us that attention and working memory are limited (Baddeley, 2020; Sweller et al., 1998), so instructional design should simplify decision-making while protecting the core components of effective literacy instruction. Blocks to Blueprints is a simple planning routine that uses predictable lesson structures, worked examples (Sweller & Cooper, 1985), and retrieval practice (Dunlosky et al., 2013; Karpicke & Roediger, 2008) to strengthen Science of Reading-aligned instruction.

Many teachers already plan thoughtfully and effectively, using district templates, scripted programs, team-developed plans, or personal systems that align with their individual contexts. Blocks to Blueprints is not intended to replace those approaches or suggest that other planning methods lack value. Rather, it offers a streamlined overlay that helps teachers keep the most instructionally critical elements visible in real time, especially in busy classrooms where plans must be teachable, adaptable, and conducive to reflection.

Blocks to Blueprints is intentionally designed to strengthen Science of Reading-aligned instruction by protecting the components that make skill learning durable: explicit teaching, cumulative review, guided practice, and opportunities for independent application. At the same time, it keeps the end goal in view, with students using those skills to read connected text with understanding, reflecting the idea that skilled reading depends on both efficient word recognition

and robust language comprehension. In other words, the framework supports teachers in moving from foundational skill construction to meaningful transfer, so students are not just practicing skills but applying them flexibly in authentic reading and writing.

Evidence Base in Brief

The Science of Reading literature converges on the idea that skilled reading develops through the coordinated growth of word recognition and language comprehension (Castles et al., 2018; Duke & Cartwright, 2021). The Simple View of Reading captures this relationship by emphasizing that reading comprehension depends on both decoding and linguistic comprehension (Gough & Tunmer, 1986). Scarborough's Reading Rope further illustrates how multiple subskills within word recognition and language comprehension become increasingly integrated over time, supporting fluent, meaningful reading (Scarborough, 2001). Recent syntheses reinforce that effective reading instruction requires explicit support for foundational word-reading processes alongside instruction that builds language, knowledge, and meaning-making (Castles et al., 2018). These principles are consistent with the Institution of Education Sciences practice guide recommendations for K–3 foundational skills instruction, including explicit instruction, cumulative review, and guided practice that supports accurate application in connected text (Foorman et al., 2016). Research also emphasizes that Science of Reading messaging can be oversimplified in practice; educators benefit from frameworks that preserve the Simple View's clarity while also reflecting advances in reading research and instruction (Duke & Cartwright, 2021).

Science of Learning research explains why instructional routines and lesson designs matter for day-to-day teaching: attention and working memory are limited, so instruction should reduce extraneous cognitive load and keep essential information easy to access during performance (Agarwal & Bain, 2019; Baddeley, 2020; Sweller et al., 1998). Three design principles are especially relevant for planning. Worked examples reduce cognitive demands by making expert thinking visible and showing what success looks like before students attempt similar tasks (Sweller & Cooper, 1985). Retrieval practice strengthens long-term retention and supports transfer by requiring students to bring information to mind, rather than simply re-reading or re-exposure (Dunlosky et al., 2013; Karpicke & Roediger, 2008). Lastly, readers' attention significantly affects reading prosody, speed, word recognition, and comprehension (Yildiz & Cetinkaya, 2017). Since attention is malleable, we can chunk literacy work into segments that strengthen attention while also building meaning-making. *Blocks to Blueprints* draws on this combined evidence base by organizing instruction into five predictable blocks that move from support to independence. It then translates each block into brief teacher language, an observable student action, and a quick evidence check, making evidence-based reading content easier to enact, monitor, and refine in real classrooms.

Why “Blocks” Matter

Blocks to Blueprints aligns with core Science of Reading frameworks that define skilled reading as the coordinated development of word recognition and language comprehension. The Simple View of Reading frames reading comprehension as dependent on both decoding and linguistic comprehension, emphasizing that limitations in either component constrain understanding (Gough & Tunmer, 1986). Scarborough's Reading Rope illustrates how multiple strands of word recognition and language comprehension become increasingly integrated over time (Scarborough, 2001). In practice, the blueprint protects explicit teaching and cumulative review within the word-

recognition strands while ensuring students apply skills in connected text and build meaning through vocabulary and knowledge. This supports the shift from accurate skill performance to comprehension and independent transfer.

In literacy instruction, the Science of Reading identifies the skills and instructional components that contribute to accurate, fluent, and meaningful reading, including the development of word recognition and language comprehension. The Science of Learning explains how attention, working memory, and long-term memory shape what students retain and can transfer. Instructional planning is where these two bodies of research intersect. Plans must protect evidence-based reading content, including explicit, systematic instruction, cumulative review, and opportunities to apply skills in connected text, while also incorporating design features that support retention, such as reducing extraneous cognitive load, using worked examples, and embedding retrieval practice.

Many teachers plan literacy lessons in ways that unintentionally increase extraneous cognitive load (Sweller, 1988; Sweller et al., 2011), including lengthy scripts, too many activities, unclear transitions, and limited space for checking understanding. When plans become unwieldy, teachers may abandon them mid-lesson, rely on memory, or rush through key parts. These are often the explicit modeling and cumulative reviews that students most need. *Blocks to Blueprints* solves a practical problem: teachers need a planning method that is (a) fast, (b) teachable, (c) aligned with evidence-based instruction, and (d) easy to revise after the lesson. The routine gives teachers a consistent structure they can rehearse, teach from, and improve with small adjustments.

The Routine in One Sentence

Build the lesson in five “blocks,” then translate each block into a one-page “blueprint” with teacher language, student actions, and quick evidence checks.

The Five Instructional Blocks

To get started, sketch a lesson using five consistent blocks:

1. Retrieve & Review (2–5 min)
2. Teach (I Do; 5–8 min)
3. Guided Practice (We Do; 5–8 min)
4. Independent Application (You Do; 5–10 min)
5. Check & Connect (2–4 min)

The five instructional blocks align with familiar instructional frameworks, including the gradual release of responsibility: explicit modeling (I Do), guided practice (We Do), and independent application (You Do; Fisher & Frey, 2008). Rather than replacing existing routines, *Blocks to Blueprints* makes these established structures more visible and consistent during planning and instruction.

The *Blocks to Blueprints* framework includes two layers: the lesson blocks (what students experience during instruction) and the planning routine (how teachers create a one-page blueprint). The time ranges that follow describe typical instructional minutes within a literacy lesson, not during planning time. Planning the blueprint (Figure 1) is designed to take about 10–12 minutes because teachers quickly sketch the five blocks and then add three short lines for each: what the teacher will say/do, what students will do, and how learning will be checked. The included time

ranges are intended to communicate that planning can be completed efficiently; teachers may adjust timing as needed. The formatting guidance (rows/columns) is optional and included only to help readers quickly recreate the one-page template.

Figure 1: The Planning Routine That Builds the Five Instructional Blocks (10–12 minutes)

Stage 1. Name the Purpose (2 minutes)	Do	Write a single purpose sentence.
	Write	<i>Students will learn ____ so they can ____.</i>
	Example (/sh/)	“Students will learn sh spells /sh/ so they can read and spell words like ship and shop.”
	Product	One sentence that anchors all five blocks.
	Quick Check	If your purpose has “and,” narrow it to one target.
Stage 2. Sketch the Five Instructional Blocks (2 minutes)	Do	Draft the lesson skeleton using the same five blocks each time: 1) Retrieve & Review → 2) Teach/ I Do → 3) Guided/ We Do → 4) Apply / You Do → 5) Check & Connect
	Example (/sh/)	<ul style="list-style-type: none"> • Retrieve: review ch and th • Teach: introduce sh and model blending (<i>sh-i-p</i>) • Guided: read 2–3 /sh/ words together • Apply: read/write 2 /sh/ words independently Check: “circle and read the sh word” exit
	Product	A sequence that moves from support → independence.
	Quick Check	Every block has a job; if one is empty, you’ll likely rush or skip it mid-lesson.
	Quick Check	If your purpose has “and,” narrow it to one target.
Stage 3. Draft the One-Page Blueprint (4–5 minutes)	Do	For each of the five blocks, write three short lines: <ul style="list-style-type: none"> • Teacher says/does (brief, teachable language) • Students do (observable action) Evidence (a quick check for learning)
	Example lines (Teach / I Do, /sh/)	Teach / I Do, /sh/ <ul style="list-style-type: none"> • Teacher: “sh says /sh/. Watch: sh-i-p... <i>ship</i>.” • Students: repeat /sh/; blend with teacher Evidence: “Point to sh and say the sound.”
	Product	A one-page plan you can teach from.
	Quick Check	If any cell becomes a paragraph, tighten it to a single line.
Stage 4. Tighten + Stress-Test (2–3 minutes)	Do (Tighten)	Choose one move: <ol style="list-style-type: none"> 1. Delete what doesn’t serve the purpose 2. Reduce transitions/materials/examples Signal the critical feature (one routine, one visual cue)

Do (Stress-test)	Answer three questions: <ul style="list-style-type: none"> • Where might students get stuck? • Where might I rush? What is my “evidence moment”?
Example (/sh/)	Add a contrast pair in Guided if confusion is likely (<i>ship/chip</i>). Cut one Apply item to protect Teach time. Evidence moment = “boards up” for mapping <i>sh-i-p</i> .
Product	A classroom-proof blueprint that protects the essential parts of the lesson.
Quick Check	If time runs short, your first cuts should come from extras, not Retrieve or Teach.
After the lesson (not a planning stage)	One-line revision (30 seconds) <ul style="list-style-type: none"> • Write: <i>Next time I will _____.</i> Example: “Next time, I will add one more We Do example before independent spelling.”

Many teachers work within scripted or highly resourced curricula. Blocks to Blueprints is designed to function as a one-page overlay rather than a replacement for required materials. Teachers can map the program lesson into the five blocks (Retrieve, Teach, Guided, Apply, Check) and then add three short lines per block (teacher language, student action, evidence check) to clarify pacing, highlight the must-do instructional moments, and plan quick checks for understanding. If a school or district requires a uniform lesson-plan template, teachers can use the blueprint as the planning “source” and transfer key lines into required fields (objective/purpose, procedures, checks for understanding, differentiation).

Some teachers also attach the blueprint as a one-page lesson overview to accompany the required template, so the plan remains easy to teach from in real time. This makes the blueprint a living document instead of a one-and-done plan. Figure 2 shows how to first outline instruction using five predictable blocks, then translate each block into a one-page blueprint that specifies brief teacher language, observable student actions, and a quick evidence check. The result is a plan that is easier to implement and easier to refine.

Figure 2: Planning Stages → Instructional Blocks → One-Page Blueprint

Four Planning Stages (10–12 min)	→	One-Page Blueprint (what you teach from)
1. Name the purpose (one sentence)	→	Purpose line at the top of the page
2. Sketch the five blocks (lesson skeleton)	→	Five rows: Retrieve, Teach, Guided, Apply, Check
3. Blueprint each block (3 lines per block)	→	Three columns for each row: Teacher / Students / Evidence
4. Tighten + stress-test (Delete/Reduce/Signal + 3 questions)	→	Lean plan that protects key moments + clear evidence checks

Figure 3 provides a template to translate five instructional blocks into a one-page blueprint with brief language, observable student actions, and an aligned evidence check.

Figure 3: One-Page Blueprint Template

Lesson Purpose:			
• Students will learn _____, so they can _____.			
Target skill/knowledge: _____			
Materials (keep to essentials): _____			
Block	Teacher says/does (brief, teachable language)	Students do (observable action)	Evidence (quick check for learning)
1. Retrieve & Review (2–5 min)			
2. Teach / I Do (5–8 min)			
3. Guided Practice / We Do (5–8 min)			
4. Independent Application / You Do (5–10 min)			
5. Check & Connect (2–4 min)			
Tightening Move (<i>circle one</i>): Delete / Reduce / Signal			
After-lesson note (<i>one sentence</i>): Next time I will _____.			

Although the worked example in this article focuses on early decoding, the same one-page blueprint can be used to plan any part of the literacy block, including shared reading, writing, vocabulary, fluency, and comprehension. This is because the structure centers on clear purpose, intentional practice, and quick evidence of learning. To make the routine concrete, Figure 4 shows a full, classroom-ready worked example for grades 1–2, followed by a brief adaptation that

illustrates how the same five blocks transfer to grades 3–5. This worked example emphasizes phoneme–grapheme mapping, blending, and spelling because building secure word representations depends on connecting pronunciations to spellings and meanings through repeated, accurate mapping opportunities (Ehri, 2014).

Figure 4: Worked Example of a Decoding Lesson Blueprint

Block	Teacher says/does (brief, teachable language)	Students do (observable action)	Evidence (quick check for learning)
1. Retrieve & Review (2–5 min)	“Quick review.” Point to ch : “Sound?” Point to th “Sound?” Then: “Read these with me: <i>chip</i> , <i>thin</i> .”	Choral respond to sounds; read 2 review words.	Listen for accurate sound + smooth reading; note who hesitates.
2. Teach / I Do (5–8 min)	“Today we will learn the digraph sh . Sh says /sh/.” Show card: “Say /sh/.” Watch my mouth as I say sh . Worked example (decode): “Watch: sh – i – p ... <i>ship</i> .” “I see sh , I say /sh/, then I blend.”	Repeat /sh/; say /sh/ while noticing airflow and mouth position; track and blend with the teacher once.	“Point to sh .” “Say the sound.” (quick 3–5 student check)
3. Guided Practice / We Do (5–8 min)	Blend together: “Let’s read these; my turn first, then together.” (<i>fish</i> , <i>shop</i> , <i>dish</i>) Map together (tap → map): “Tap the sounds in <i>ship</i> : /sh/ /i/ /p/. Now map the letters: sh i p .” Error-correction line: “Try again. Start with /sh/.”	Blend words chorally; tap phonemes; write the word with teacher support.	Scan boards for sh at the start; 2 students explain: “ sh says /sh/.”
4. Independent Application / You Do (5–10 min)	“Now you try.” Read: 4-word mix (2 <i>sh</i> + 2 review): <i>ship</i> , <i>fish</i> , <i>chip</i> , <i>thin</i> . Spell: Dictate 2 words: <i>ship</i> , <i>shop</i> . Prompt: “Tap → map → write.” (Optional sentence: “She has fish.”)	Read words to teacher/partner; tap and write dictated words.	Tally accuracy (read/spell). Look for error type: sound confusion vs. missing digraph.
5. Check & Connect (2–4 min)	Exit: “Circle the word with sh and read it.” (<i>ship</i> / <i>chip</i> / <i>thin</i>) Connect: “When you see sh , your brain can say /sh/ fast. That helps you read smoothly.”	Circle + read; quick share-out.	1:1 or small group exit check; jot names for reteach.
Tightening Move: Signal (one new spelling, a small word set, one routine: Tap → Map → Read)			
After-lesson note: Next time I will (e.g., “add one more We Do contrast pair <i>ship</i> / <i>chip</i> if students confuse /sh/ and /ch/.”)			

Sidebar

Adaptation Snapshot (Grades 3–5): Morphology During Read-Aloud

Purpose: Students will learn the prefix *re-* means “again” so they can infer the meaning of unfamiliar words in connected text.

- **Retrieve & Review (2 min):** Quick recall of a previously taught prefix (e.g., *pre-* = before); students give one example word. **Evidence:** 3 rapid responses.
- **Teach / I Do (4 min):** Model chunking (*re* + *build* → rebuild = build again) with one worked example and one think-aloud. **Evidence:** choral response: “*re-* means ____.”
- **Guided / We Do (5 min):** Students chunk and explain 2 words together (*reread*, *revisit*) using a sentence frame: “____ means ____ again.” **Evidence:** listen for prefix + base + meaning.
- **Apply / You Do (5–7 min):** During the read-aloud, students identify one *re-* word and write a quick meaning inference with because: “____ means ____ because ____.” **Evidence:** quick scan for accurate inferences.

Check & Connect (2 min): Exit: define one *re-* word and use it in a sentence; connect to comprehension (“chunking helps you unlock meaning”). **Evidence:** 3 sample exits.

Why This Works

Blocks to Blueprints is effective because it reduces cognitive load during lesson planning, protects explicit instruction, embeds retrieval practice, and makes evidence checks visible. For busy teachers, the blueprint reduces decision fatigue during instruction by keeping the next best teaching move visible in each block. Teachers plan with a stable structure and can focus their attention on the highest-impact instructional elements.

- **Retrieval first:** A short review strengthens prior learning and creates a bridge to the day’s instruction.
- **Explicit instruction protected:** The I Do/We Do blocks prevent skipping modeling when time runs short.
- **Evidence is built in:** Teachers pre-plan quick checks, so assessment doesn’t become an afterthought.
- **Revision is easy:** A single “after-lesson note” guides the next blueprint, allowing for small edits instead of total rewrites.

Quick Troubleshooting

- “My lesson won’t fit on one page.”
 - The purpose is too broad. Narrow the target, reduce materials, or remove extra activities.
- “Guided practice takes forever.”
 - Use fewer examples but make them higher quality. Keep the same response routine (same sentence frame, same check).
- “I forget the evidence checks.”
 - Put the evidence in the blueprint as a verb: circle, sort, write, underline, explain.

- “Students struggle during independent work.”
 - Add one more We Do example or provide a worked example to imitate before release.

Conclusion and Next Steps

This teaching tip blends Science of Learning design with Science of Reading content. Blocks to Blueprints is designed to make strong literacy instruction easier to enact consistently. By organizing lessons into five predictable blocks and translating each block into brief teacher language, observable student actions, and an aligned evidence check, teachers protect essential Science of Reading practices while leveraging Science of Learning principles that support retention and transfer. Over time, the blueprint becomes more than a plan; it becomes a simple record of what worked, what students showed, and what to adjust next.

Next Steps for Classroom Use

1. Try it with one lesson tomorrow. Choose a single target skill and complete the one-page blueprint in 10 minutes.
2. Run a 5-day “blueprint streak.” Teach from the blueprint for one week and use the one-line revision daily. Patterns will emerge quickly (e.g., too many examples, not enough guided practice, weak evidence checks).
3. Use it in PLCs or coaching cycles. Bring one blueprint, highlight the strongest block, then revise only one block using Delete/Reduce/Signal.
4. Collect lightweight evidence of impact. Track one indicator (e.g., exit checks, decoding accuracy, or vocabulary application) and use that data to refine the next blueprint rather than expanding the lesson.

Over time, the goal is simple: the blueprint makes it easier to repeat and refine strong instruction, so students move from supported skill practice to independent, meaningful reading.

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