



How Writing Instruction Can Revolutionize Education

OHIO LITERACY ACADEMY

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This presentation will cover ...

- How writing instruction can boost reading comprehension, analytical abilities, and learning in general
- Why previous approaches to writing instruction have fallen short
- Why it's important for students to write about the content of the core curriculum
- Why it's crucial to modulate the cognitive load writing imposes
- How you can embed manageable, explicit writing instruction in whatever content you're teaching



Is Human Writing Now Obsolete?

ChatGPT: Optimizing
Language Models
for Dialogue

st Newsletters

The Atlantic

TECHNOLOGY

The End of High-School English

I've been teaching English for 12 years, and I'm astounded by what ChatGPT can produce.

By Daniel Herman

The New York Times

Don't Ban ChatGPT in Schools. Teach With It.

OpenAI's new chatbot is raising fears of cheating on homework, but its potential as an educational tool outweighs its risks.

Writing is hard.



But it's not just a skill that can be subcontracted out to a device.



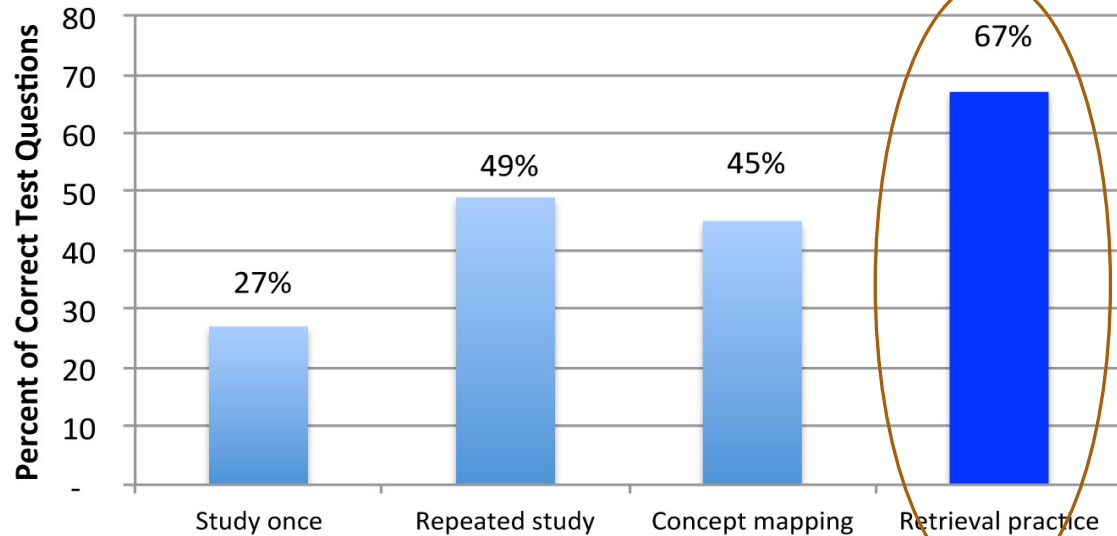
Writing isn't just putting down what you already know.



Writing—if taught well—can also provide significant benefits for students.

Benefit #1: Enabling Retention of Information/Enhancing Learning

Comparison of Retrieval Practice with
Other Common Learning Methods



Karpicke and Blunt, 2011

Restricted access | Research article | First published online March 19, 2020

The Effects of Writing on Learning in Science, Social Studies, and Mathematics: A Meta-Analysis

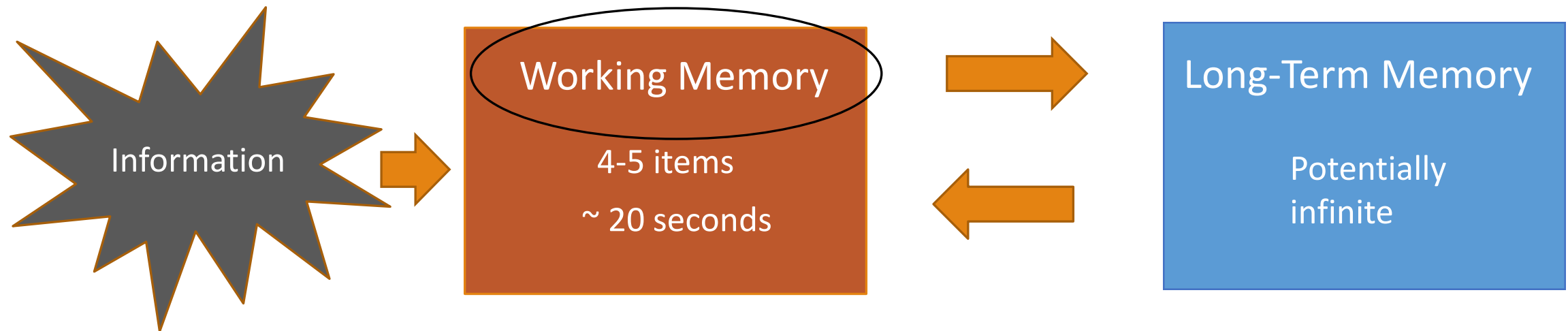
[Steve Graham](#), [Sharlene A. Kiuahara](#), and [Meade MacKay](#) [View all authors and affiliations](#)

Analyzed 56 experimental studies—with K-12 students

“As predicted, writing about content reliably enhanced learning (effect size = 0.30).”

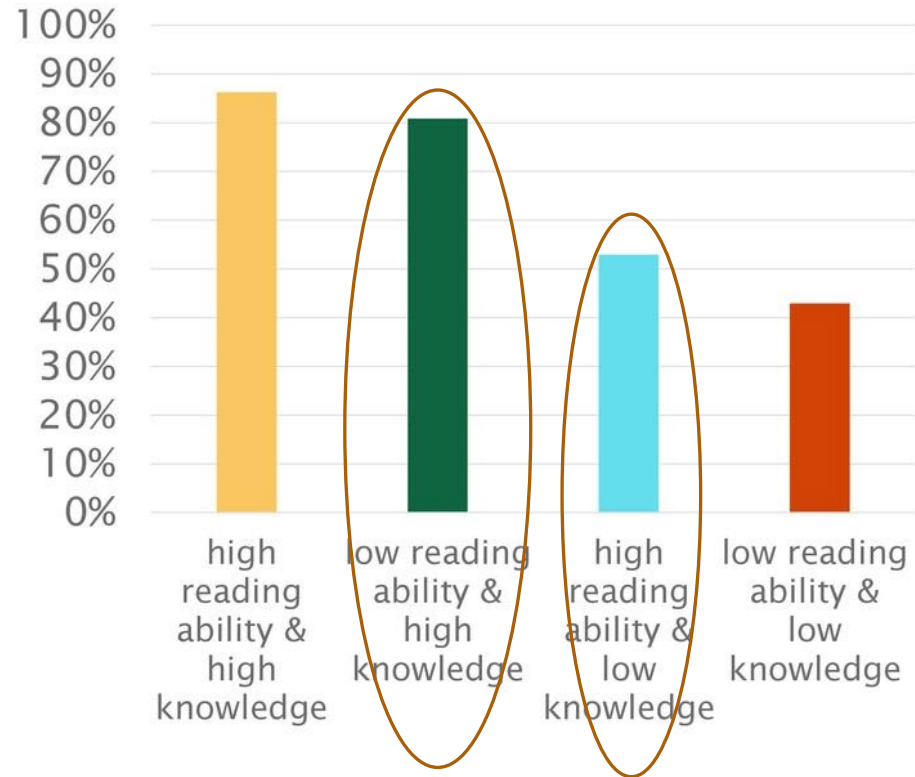
The “Free Recall” experiment—
with college students

Why retaining information enhances learning.



The burden on working memory = “cognitive load”

Measure of Comprehension



Knowledge of the
topic boosts
comprehension:
The Baseball Study
(Recht and Leslie, 1988)

We draw on background knowledge to understand *everything* we learn—and read.

There's a strong correlation between:

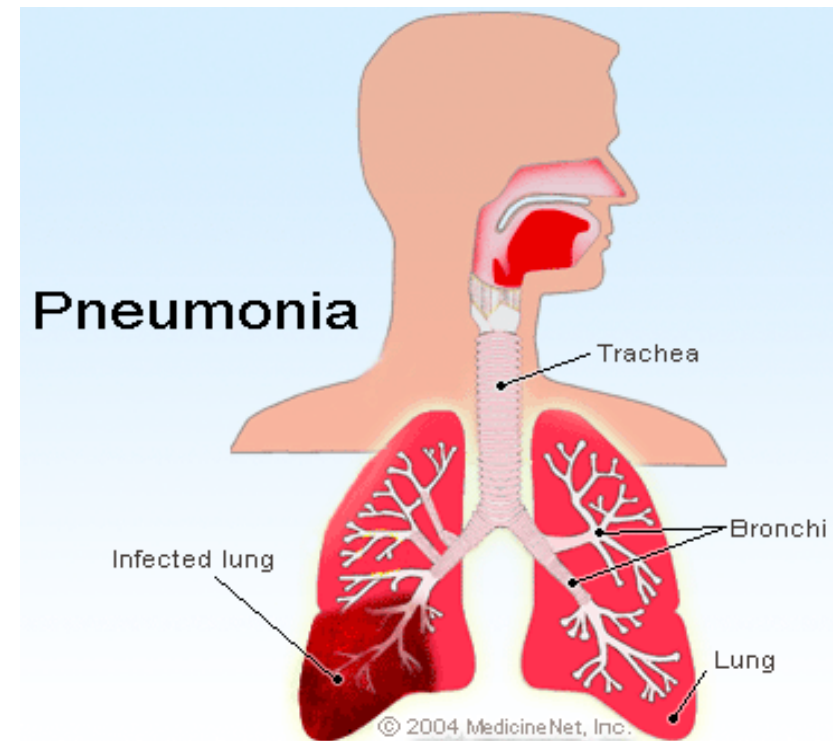
1. General academic knowledge (e.g., “In what part of the body does pneumonia occur?”)

AND

2. General reading comprehension

Which suggests that ...

To boost comprehension and learning, kids need to acquire as much academic knowledge and vocabulary as possible.



Knowledge also
helps you *retain*
new
information.



COMPREHENSION

strategies vs. skills

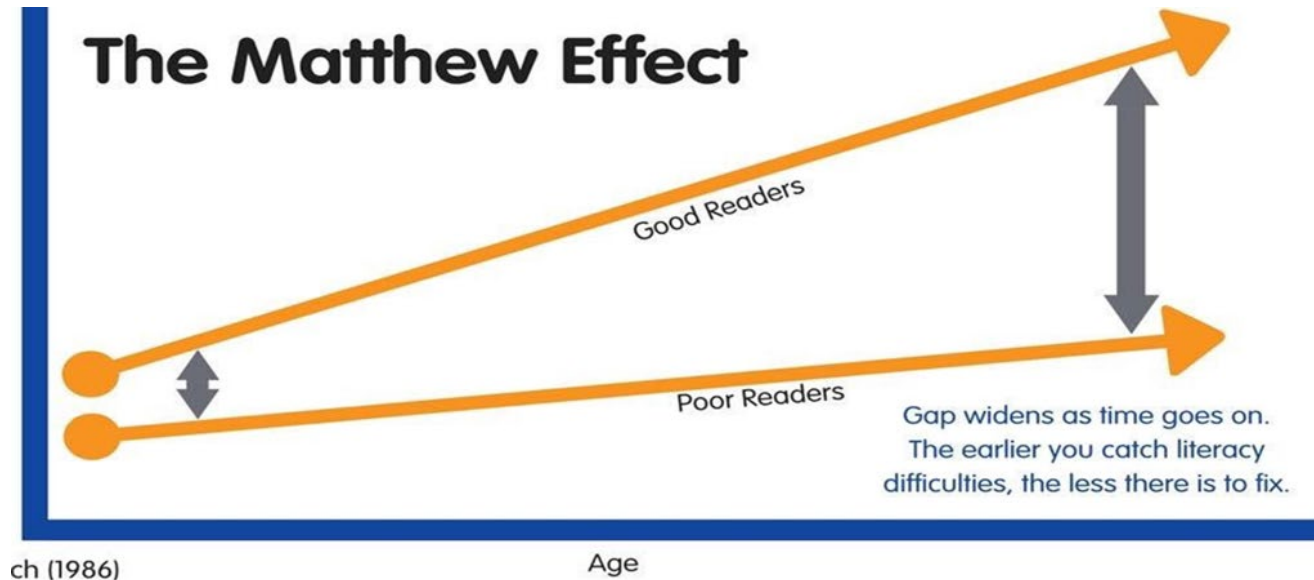
- Using Schema
- Predicting
- Inferring
- Questioning
- Determining Importance
- Visualizing
- Synthesizing

- Main Idea & Details
- Author's Purpose
- Determining Theme
- Cause & Effect
- Summarize/Retell
- Sequence of Events
- Compare & Contrast
- Story Structure
- Classify & Categorize
- Fact & Opinion
- Drawing Conclusions
- Point of View
- Identifying Genre
- Describing Plot
- Making Predictions
- Figurative Language



Why many students at higher grade levels struggle to understand complex text

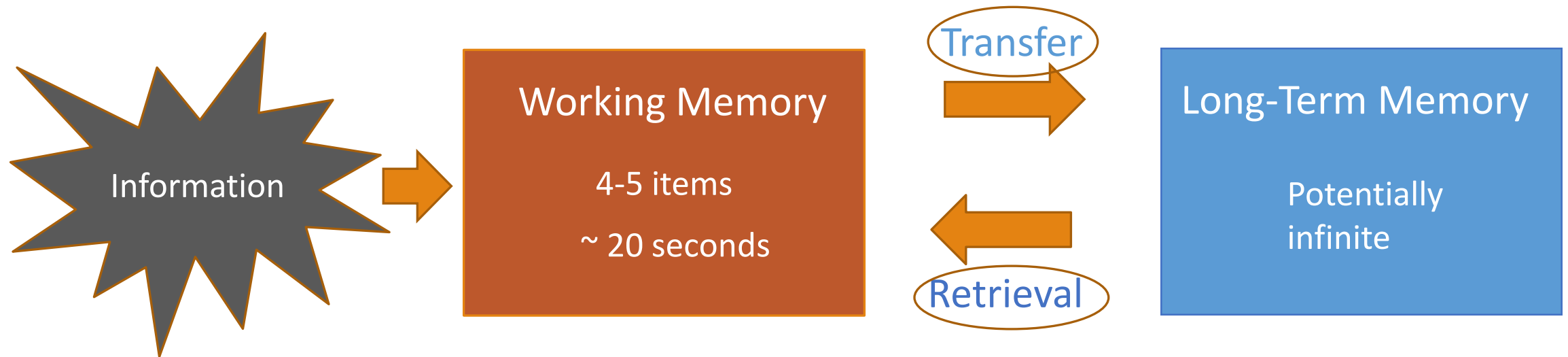
Gaps between “good” and “poor” readers grow over time:



A problem: It can *look* like the “skills and strategies” approach is working at lower grade levels ...

But the approach can backfire when students reach upper grades.

Writing about curriculum content can prevent and/or compensate for these gaps in knowledge.



Writing can make knowledge “stickier.”

Benefit #2: Familiarizing students with complex syntax

From *Stellaluna*:

One night, as Mother Bat followed the heavy scent of ripe fruit, an owl spied her. On silent wings the powerful bird swooped down upon the bats. Dodging and shrieking, Mother Bat tried to escape, but the owl struck again and again, knocking Stellaluna into the air. Her baby wings were as limp and useless as wet paper.

From the Declaration of Independence:

When in the course of human events, it becomes necessary for one people to dissolve the political bonds which have connected them with another, and to assume among the powers of the earth, the separate and equal station to which the Laws of Nature and of Nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

Complex syntax can prevent comprehension.

“Rachel Carson, a scientist, writer, and ecologist, grew up in the rural river town of Springdale, Pennsylvania.”

Researcher: “What do you know about Rachel Carson now?”

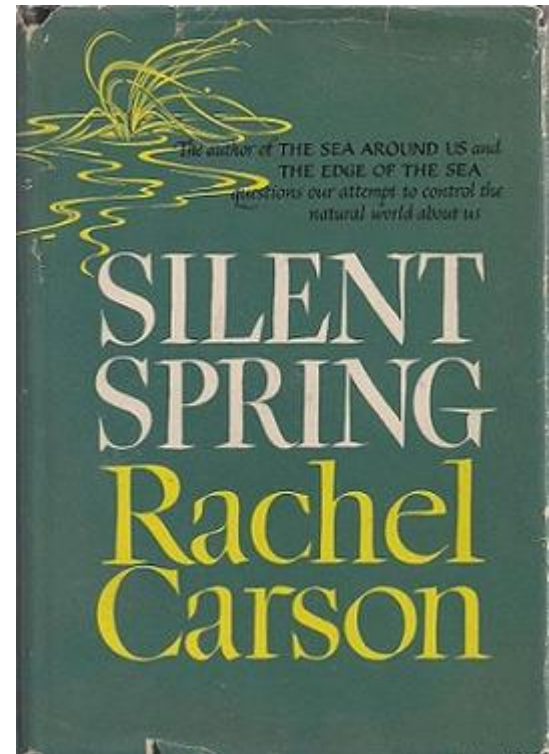
Student: “They grew up together in the same place.”

Source: Scott and Balthazar, *Perspect Lang Lit*. 2013 Summer; 39(3): 18–30.

Long-term, large-scale study:

Fewer than 10% of 8th-graders can “evaluate complex syntax.”

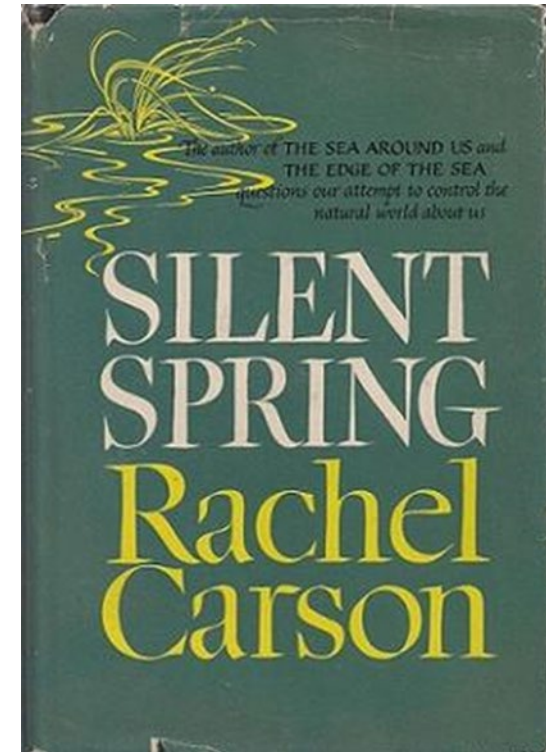
Reardon, Valentino & Shores 2012 (ECLS-K data)



How writing instruction can help:

- Teach students what an appositive is (a phrase describing a noun), using familiar content.
- After students have learned about Rachel Carson, give them this sentence to complete:

Rachel Carson, _____,
grew up in Springdale, Pennsylvania.



Benefit #3: Building analytical abilities

When we write we are:

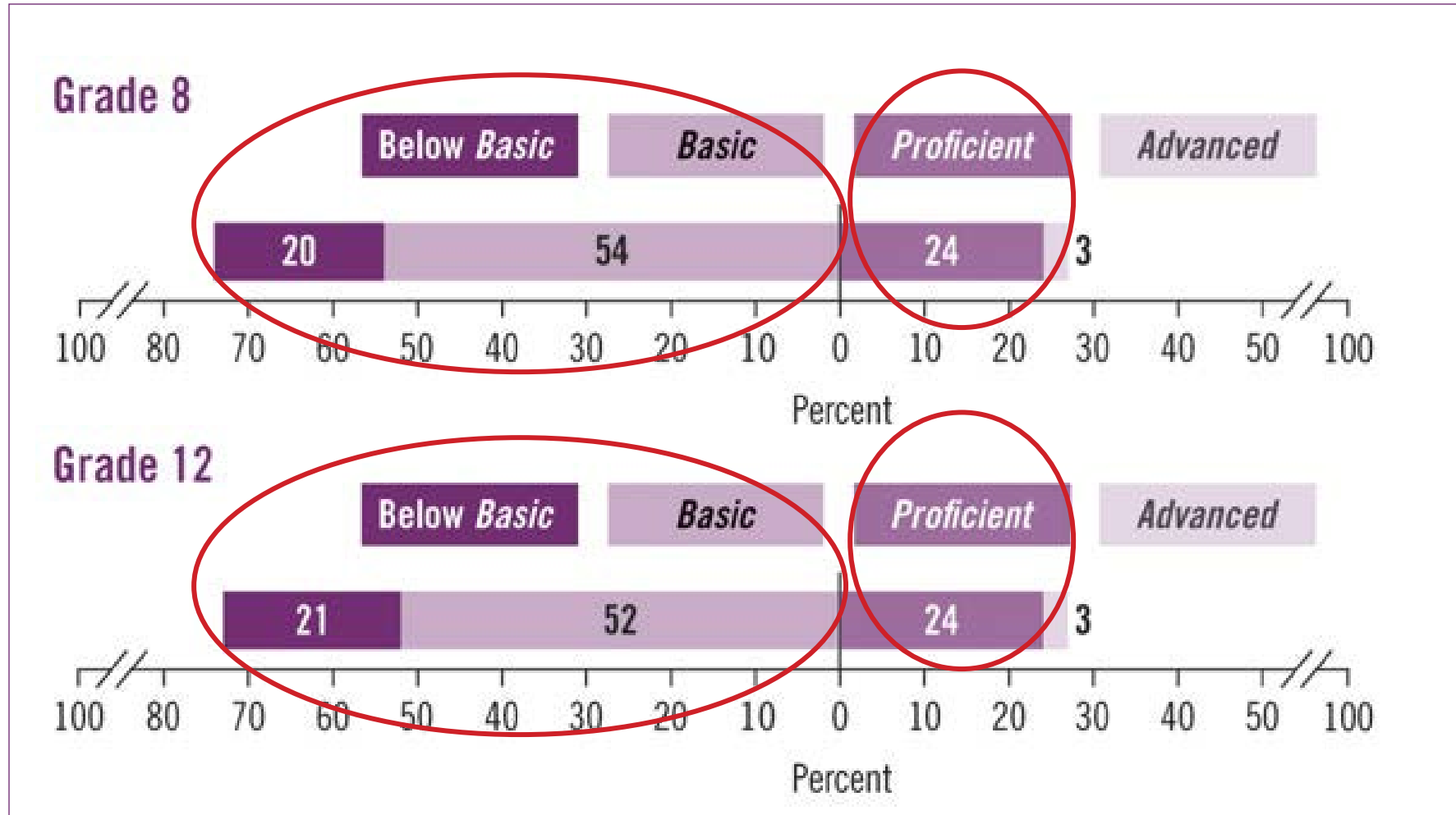
- Finding the main idea and supporting details
- Making inferences
- Comparing and contrasting
- Connecting claims to evidence
- Etc.



BUT: most students aren't getting these benefits—and they're not learning to write well either.



2011 NAEP Writing Results

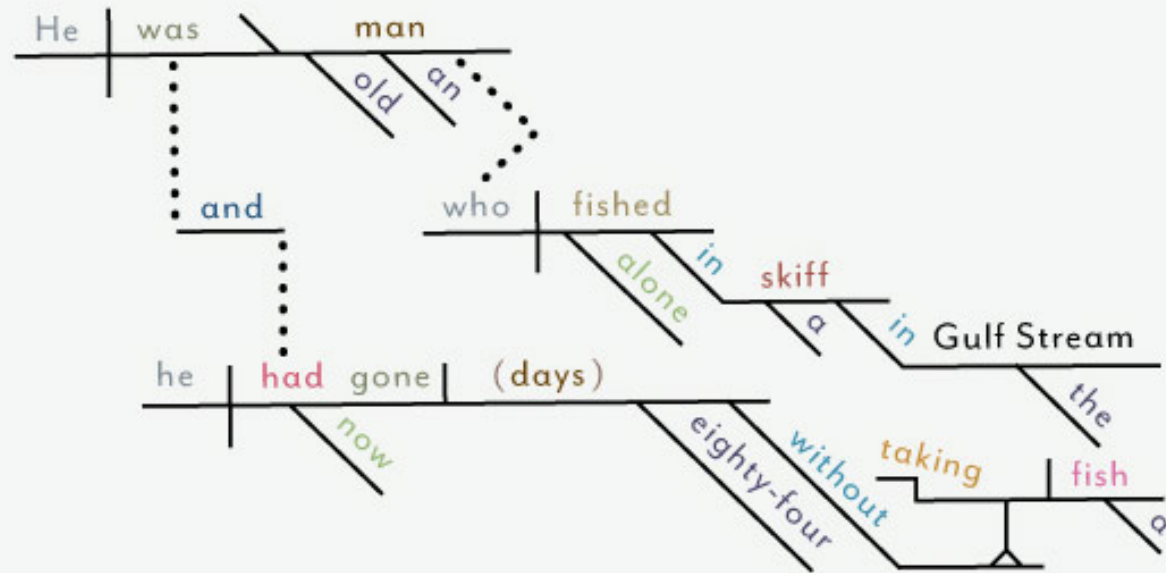


27% of all students tested: Proficient+

~73% of all students: Basic and ↓ Basic

He was an old man who fished alone in a skiff in the Gulf Stream
and he had gone eighty-four days now without taking a fish.

Hemingway, *The Old Man and the Sea*



The Traditional
Approach:
Grammar
Rules, Sentence
Diagramming



Small Moments

Going to the beach → Building a sandcastle

The carnival → Riding a roller coaster

Playing at recess → Climbing the rock wall

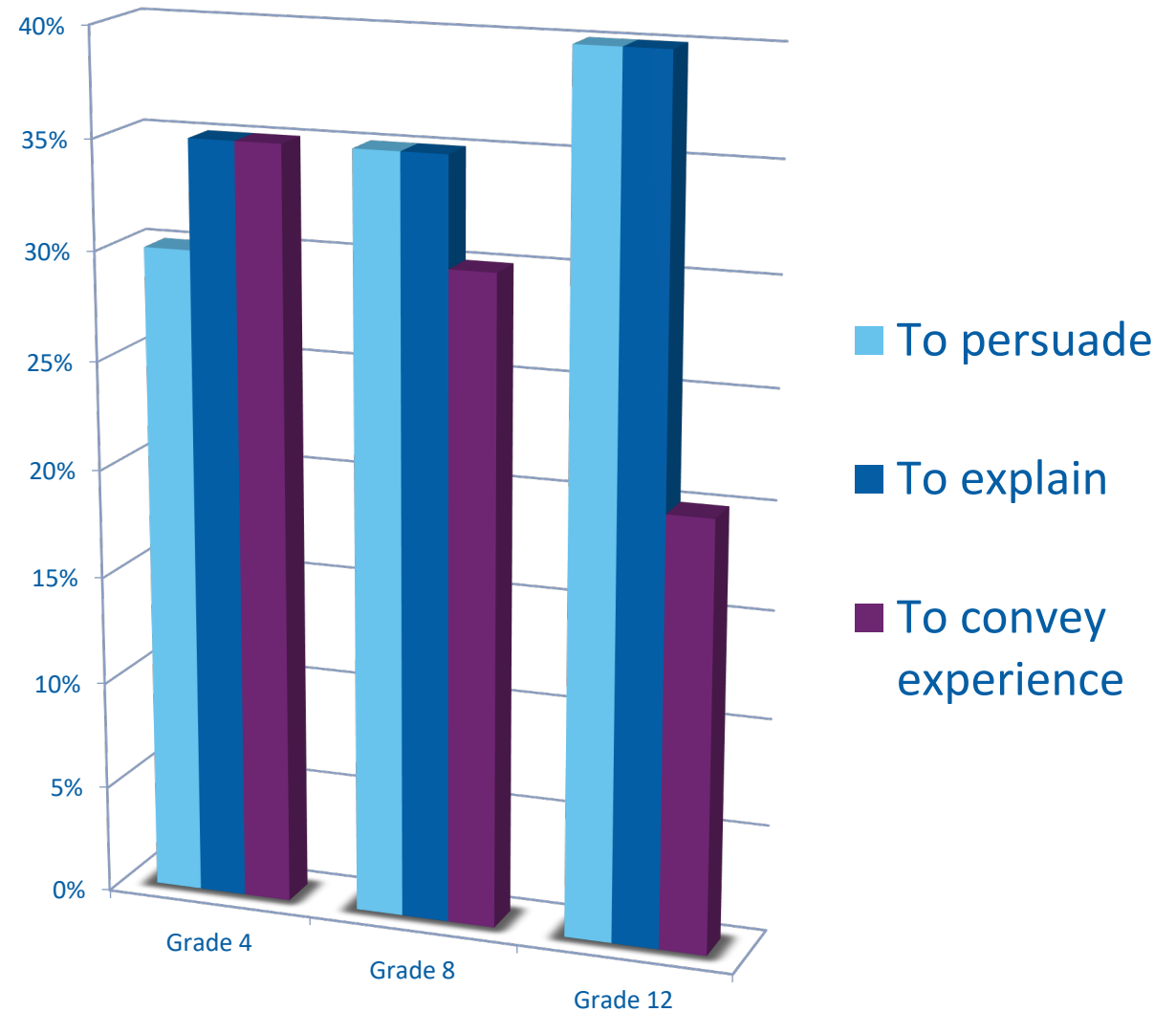
Birthday Party → Hitting the piñata

Play date with friends → Trampoline jumping

Going to school → When Clifford stopped by

The Newer
Approach:
Writer's
Workshop

Writing standards have gotten more rigorous.
But how can teachers enable students to *meet* the standards?



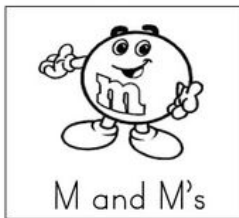
What the standard approaches overlook, #1: Writing should be tied to the knowledge we want to build.

Name _____

Opinion Writing



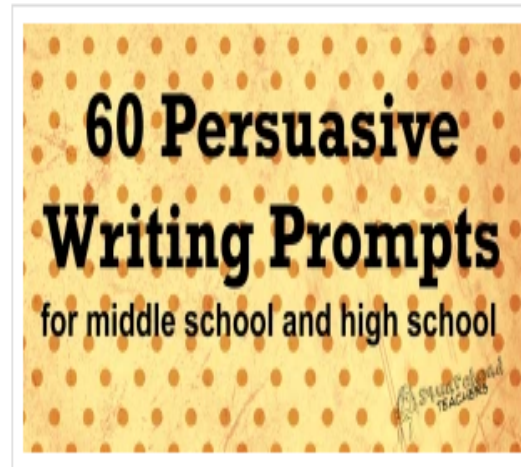
or



Do you like Skittles or M and M's?

I like _____

because _____



1. Convince your parents to raise your allowance.
2. Should at least two years of foreign language classes be required for high-school graduation?
3. Should there be a dress code at your school?

If students are learning about the Civil War, they should be *writing* about the Civil War.



What the standard approaches overlook, #2: Writing is the hardest thing we ask students to do.

Working Memory

4-5 items

~ 20 seconds

“Cognitive load” = the burden placed on working memory


Inexperienced writers may be juggling:

- Letter formation
- Spelling
- Word choice
- Organization
- Content
- The peculiar syntax & vocabulary of written language
- All of this creates “cognitive load”—and stress

Open-ended or complex writing prompts can be overwhelming for inexperienced writers—at any grade level.

Lesson 4: Target Task Date

How does the tiny seed survive? Give multiple reasons.

				
---	--	--	--	--

Handwritten student response on lined paper:

The tiny seed survives because it has a hard shell that protects it from the sun and the cold. It also has a root that grows down into the soil to get water and nutrients. The seed also has a small amount of food inside it to help it grow until it can find its own way to get food.

The “free recall” experiment at the elementary level

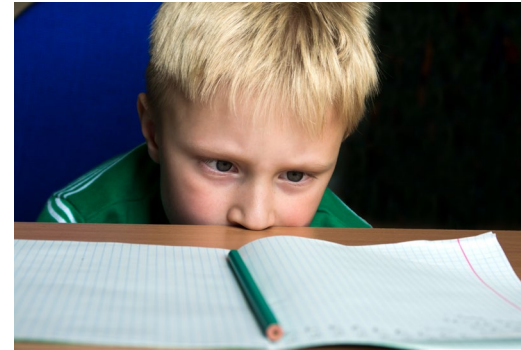
College students:

Could recall 81% of the concepts they’d read about.



4th graders:

Could recall only 10% of the concepts they’d read about.



Why the difference?

4th-graders needed to devote more working memory capacity to **WRITING**.

With more guidance—or less writing—children’s recall improved.

Writing is so hard that many students will need more than:

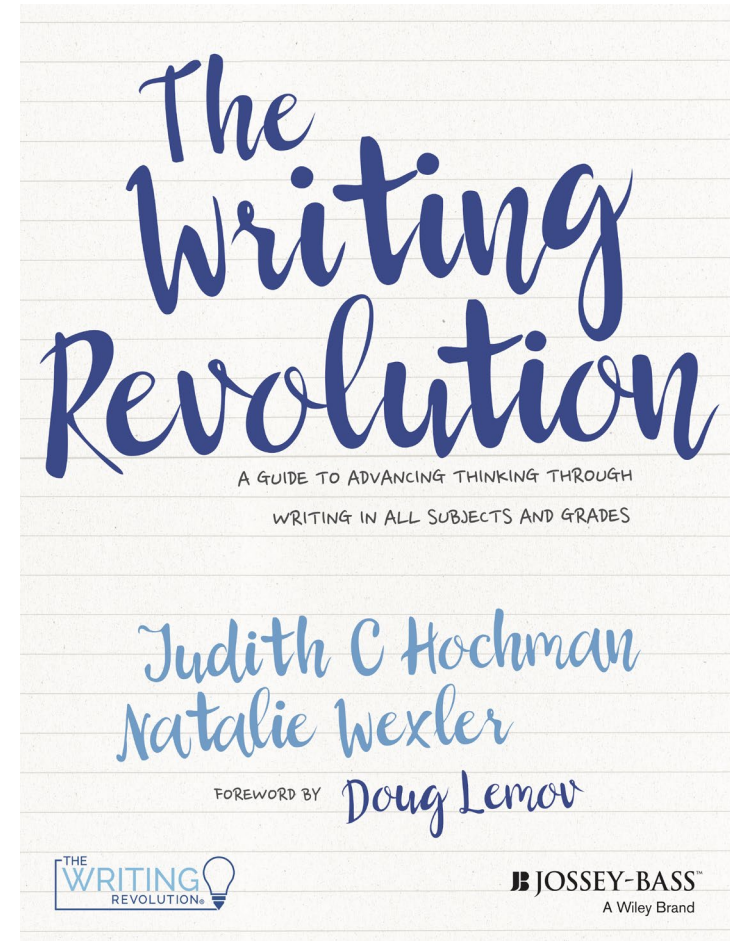
- Mentor texts
 - “Knowing that” vs “knowing how”
- Connecting writing to the content they’re learning about
 - Teachers “feel like their kids have something to say. They just developmentally can’t organize it. They can’t get it out.”



Deloris Fowler, instructional coach
Putnam County, TN

How can we ensure kids learn to write—and use writing to build knowledge?

1. Embed writing activities in the content of the core curriculum.
2. Teach grammar & conventions in the context of students' own writing.
3. Modulate cognitive load.



Different aspects of literacy impose different levels of cognitive load.



After students acquire background knowledge through listening and speaking, they can read and *write* at a higher level—about THAT topic.

Another way to modulate cognitive load: “deliberate practice”

- Give students practice with manageable chunks of a process.
- Provide prompt, targeted feedback.
- When students have grasped one chunk, move on to one that’s harder.
- With basic skills in long-term memory, students have more capacity for higher-order thinking.



With writing, what chunk should we begin with?

Sentences. Here's why:

- Sentences free up space in working memory for “desirable difficulties.”
- Sentences are the building blocks of all writing.
- Sentences make it easier to teach grammar and conventions.
- Sentence activities can identify specific gaps in knowledge or comprehension.
- Sentence activities can familiarize students with complex syntax.



Sentence Combining can help with complex syntax.

Give students several simple sentences. E.g.:

- Rachel Carson was a scientist.
- Rachel Carson was a writer.
- Rachel Carson was an ecologist.
- Rachel Carson grew up in Springdale, Pennsylvania.

Have students convert the simple sentences into one complex sentence:

Rachel Carson, a scientist, writer, and ecologist, grew up in Springdale, Pennsylvania.

Even better: Familiarize students with complex syntax AND reinforce knowledge.

- Teach students what an appositive is (a phrase describing a noun), using familiar content.
- After students have learned about Rachel Carson, give them this sentence to complete:

Rachel Carson, _____, grew up in Springdale, Pennsylvania.

Sentence-level skills that can be stored in long-term memory through practice:



- The concept of a sentence (fragments, run-ons)
- Different sentence types (statement, question, etc.)
- Conjunctions (because, but, so)
- Sentence complexity (subordinating conjunctions, appositives)

What makes a sentence a sentence?

5. Only one of the following sentences is correct. Select it.

- A) A great film.
- B) A great film is.
- C) Fascinating films.
- D) Enjoyed the film.
- E) **She watched a great film.**

6. Only one of the following sentences is correct. Select it.

- A) **He scowled.**
- B) The silent crowd.
- C) The silent and unhappy crowd.
- D) Scowled at the screen.
- E) The silent crowd scowled at the camera and.

- ~ 2000 students in England in ~4th grade
- Question #5: 91% got the right answer
- Question #6: Only 13% got the right answer
- Students were focusing on surface features—like length

Source: <https://substack.nomoremarking.com/p/using-innovative-assessments-to-improve>

Many sentence activities can build skills AND knowledge.

1. F welcomes newcomers from faraway countries

The Statue of Liberty welcomes newcomers from faraway countries.

2. F the “mother of exiles”

The “mother of exiles,” a famous monument, holds a torch with a welcoming glow.

3. S the “mighty woman” stands in the new york harbor

The “mighty woman” stands in the New York Harbor.

The New Colossus

BY EMMA LAZARUS

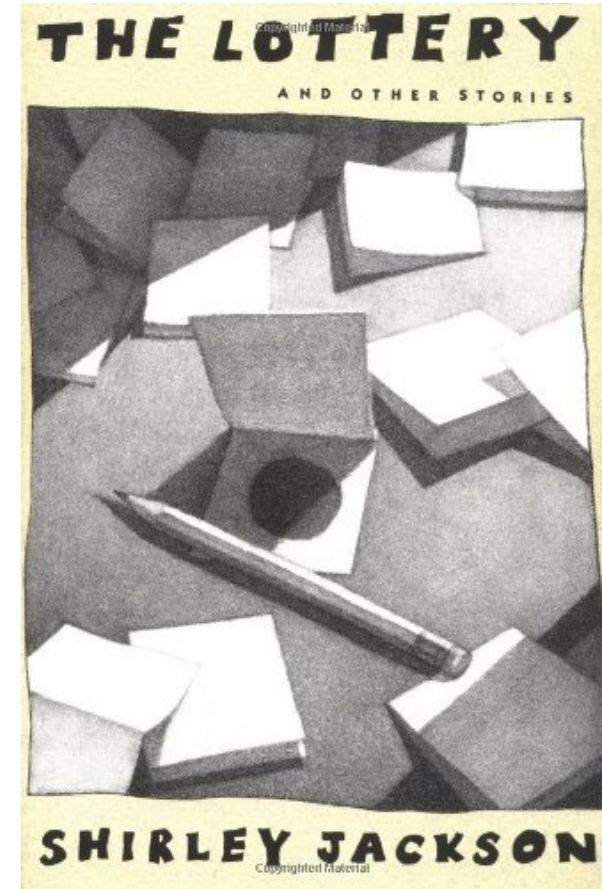
Not like the brazen giant of Greek fame,
With conquering limbs astride from land to land;
Here at our sea-washed, sunset gates shall stand
A mighty woman with a torch, whose flame
Is the imprisoned lightning, and her name
Mother of Exiles. From her beacon-hand
Glows world-wide welcome; her mild eyes command
The air-bridged harbor that twin cities frame.
“Keep, ancient lands, your storied pomp!” cries she
With silent lips. “Give me your tired, your poor,
Your huddled masses yearning to breathe free,
The wretched refuse of your teeming shore.
Send these, the homeless, tempest-tost to me,
I lift my lamp beside the golden door!”

Conjunctions: Because, But and So

The same black box was used each year because
_____.

The same black box was used each year, but
_____.

The same black box was used each year, so
_____.

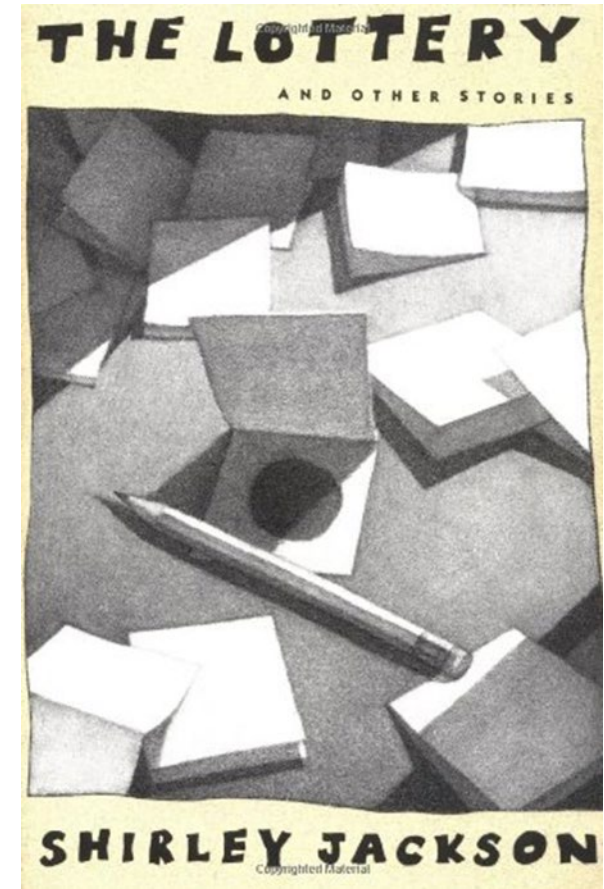


Possible Responses

The same black box was used each year because the villagers did not want to upset tradition.

The same black box was used each year, but Mr. Summers wanted a new one.

The same black box was used each year, so it was shabby and splintered.



Writing can build knowledge across the curriculum—e.g., in math

Fractions are like decimals because they are all parts of wholes.

Fractions are like decimals, but they are written differently.

Fractions are like decimals, so they can be used interchangeably.

$$0.25 = \frac{1}{4}$$

Sentence Expansion in Science



They make good barriers.

What:lipids.....

Where:around cells.....

Why:non-polar.....

Expanded sentence:

Lipids make good barriers around cells because they
are non-polar.

Adding Complexity: Subordinating Conjunctions

1. Since Rosa Parks refused to give up her seat, she was arrested.
2. When Rosa Parks challenged her arrest, a boycott began.
3. Although Rosa Parks held no official power, she greatly influenced the future of the nation.



Appositives in Social Studies

Appositive: a Greek city-state

(T.S.) Athens, a Greek city-state, valued education and democracy.

Appositive: a great philosopher

(T.S.) Socrates, a great philosopher, created a method of questioning.

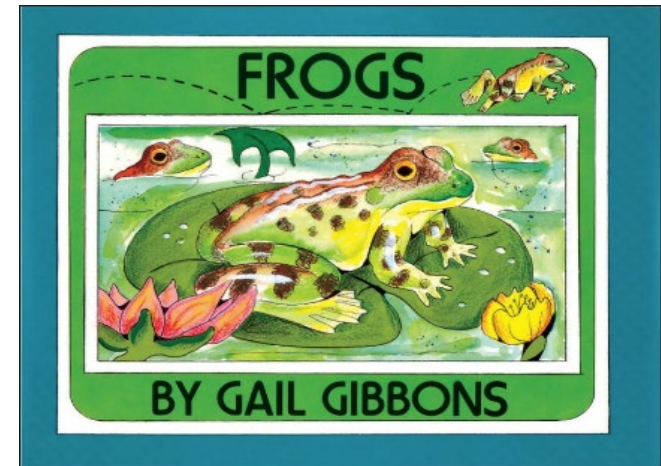
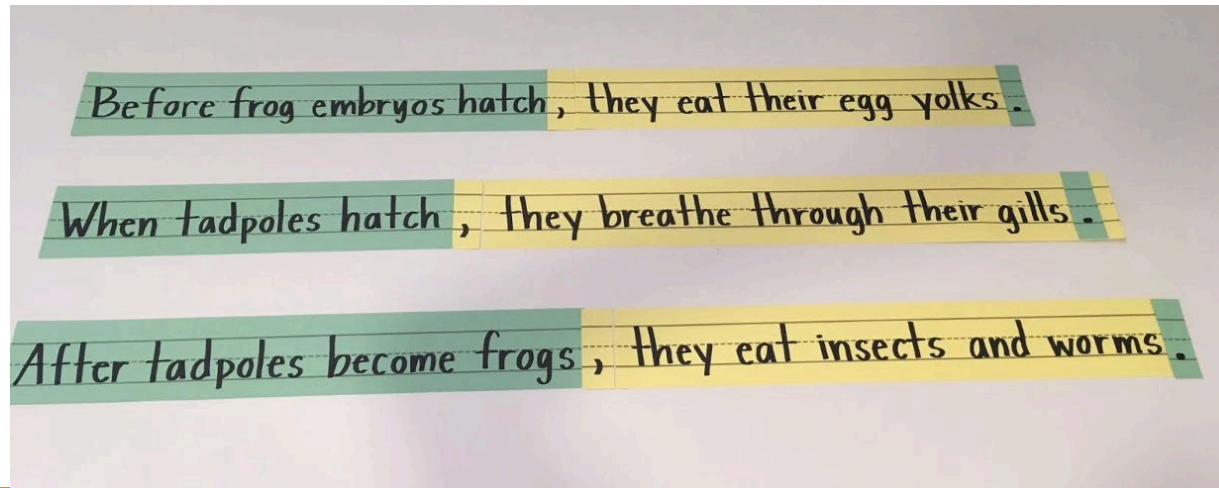
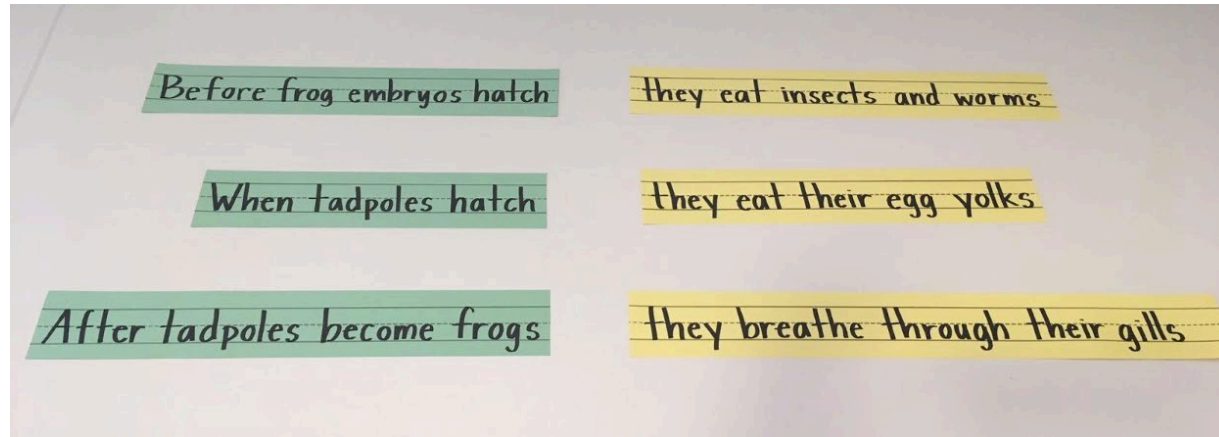
Appositive: a series of contests

(T.S.) The Olympics, a series of contests, were held in honor of the Greek gods.



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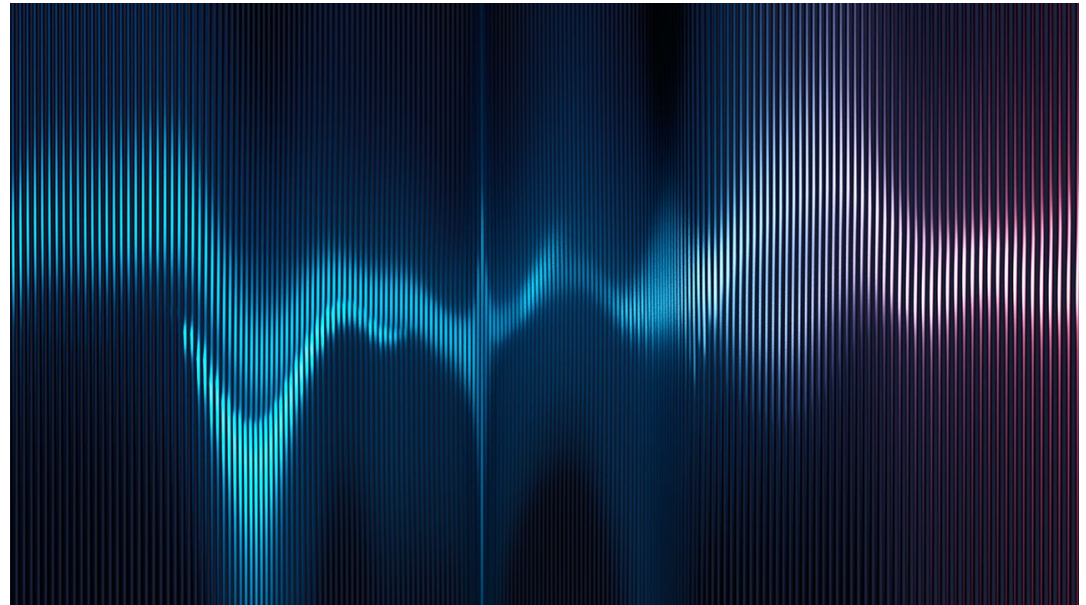
Activities can be scaffolded for young children—
or English language learners of any age.



They can also be done orally
as a whole-class activity.

You can't see sound waves because
they are invisible.

You can't see sound waves, but you
can hear them .



Sentence-level work isn't just for kids.

The rigor depends on the content.

Immanuel Kant believed that space and time are subjective forms of human sensibility, but _____.

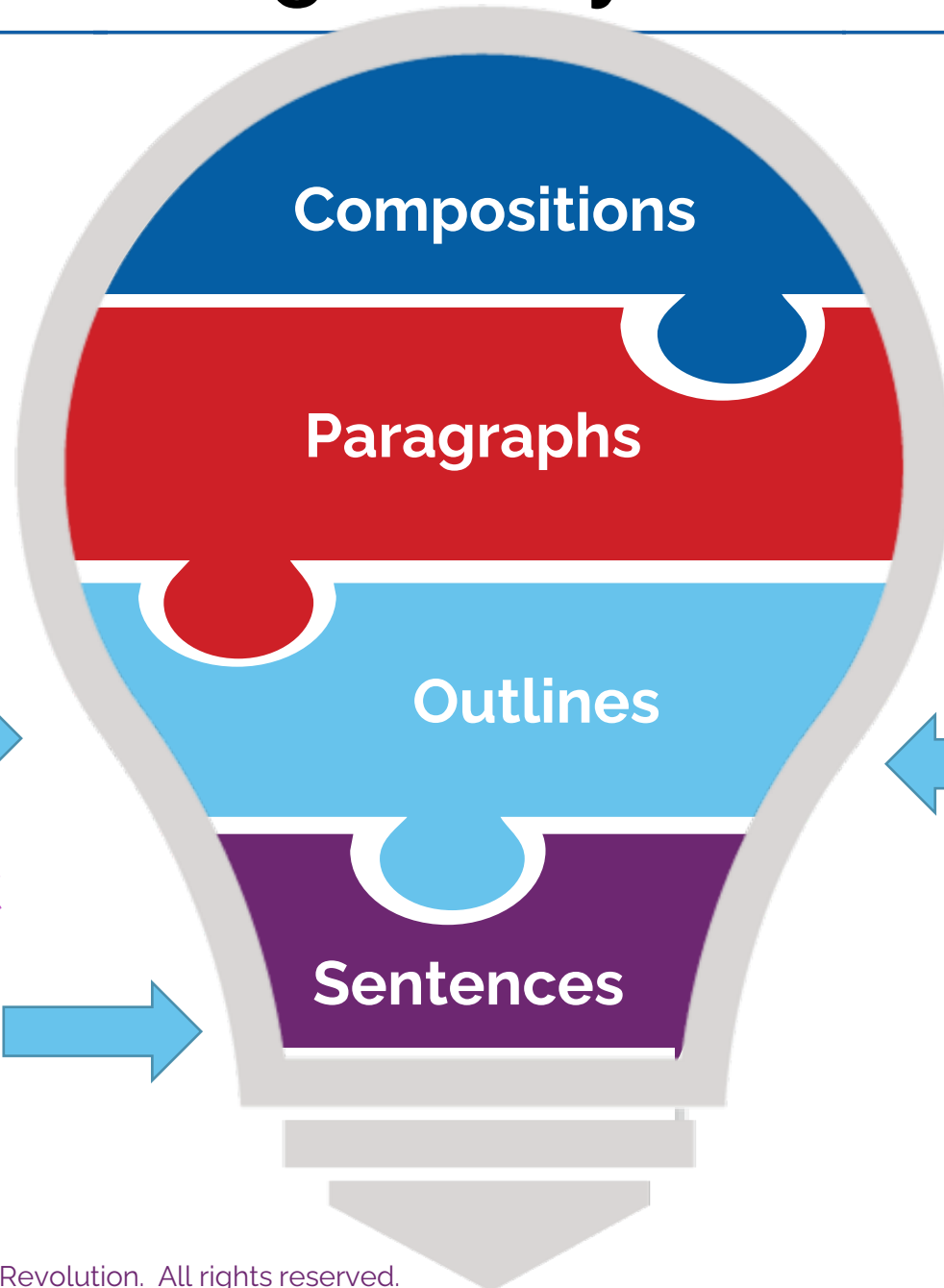


This method goes beyond sentences



Creating an outline is itself a knowledge-building activity.

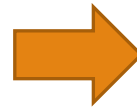
But sentence-level work lays the foundation for independent writing at length.



A linear outline modulates cognitive load.

Single-Paragraph Outline → Paragraph

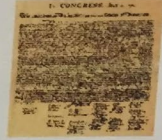
- T.S. Martin Luther King Jr., a civil rights leader, fought peacefully to end segregation in America.
1. Dec. 1955/ King selected by NAACP= a civil rights organization → lead bus boycott in Montgomery, Alabama
 2. NAACP filed lawsuit/ segregation on city bus unconstitutional → 11/13/1956 U.S. Supreme Court ruled bus segregation illegal
 3. 8/28/1963 led "March on Washington" + "I Have a Dream" speech
 4. received 1964 Nobel Peace Prize/ assassinated on 4/4/1968
- C.S. Although Martin Luther King never saw segregation end, his dream came true and his legacy is honored every third January in the United States.



Martin Luther King Jr., a civil rights leader, fought peacefully to end segregation in America. In December of 1955, King was selected by the National Association for the Advancement of Colored People (NAACP), a civil rights organization, to lead a bus boycott in Montgomery, Alabama. In addition, the NAACP filed a lawsuit arguing segregation on a city bus was unconstitutional. As a result, on November 13, 1956, the U.S. Supreme Court ruled bus segregation was illegal. On August 28, 1963, King led a demonstration known as the "March on Washington" and gave his famous "I Have a Dream" speech. Furthermore, he received the 1964 Nobel Peace Prize. Sadly, King was assassinated on April 4, 1968. Although Martin Luther King never saw segregation end, his dream came true and his legacy is honored every third January in the United States.

Sentence-level activities lay the groundwork for longer writing—while building knowledge.

Name Orlye Date _____



Write follow-up sentences using the transition words.

1. The colonists were angry that they had to follow English laws and pay taxes to England. **Therefore**, the colonists boycotted English goods.
2. Leaders of the American colonies held meetings in Philadelphia. **As a result**, they decided they did not need a king to rule them.
3. Thomas Jefferson was a talented writer. **Therefore**, the colonists wanted him to write the Declaration of Independence.
4. On July 4, 1776, the leaders signed the Declaration of Independence. **Consequently**, the thirteen colonies became the United States of America.

Distinguish a topic sentence from details



_____ Rural communities have lots of open land with few buildings and people.

_____ An urban community is in a crowded city with tall buildings and many businesses.

T.S. There are different kinds of communities in our state.

_____ In a suburban community, there are many houses and apartments.

Given a topic sentence, generate details:



T.S. Spiders are interesting creatures.

1. hatch from eggs in sac

2. weave webs or hide to hunt insects

3. some insects, frogs, birds

4. few poisonous, most don't hurt people

C.S. _____

babies

food

predators

danger

Introducing topic sentence strategies in the context of familiar content.

Spring – Topic Sentence Three Ways

Directions: Write three topic sentences about the topic: one using a different sentence type, one including an appositive, and one starting with a subordinating conjunction.

Topic: spring

1. _____

2. _____

3. _____

1. People enjoy playing baseball, softball, and soccer in the spring.

2. Spring, the season that follows winter, is an exciting time of the year.

3. After a long winter, spring is always welcome.

Embedding the activity in current curriculum content

This activity can be used with the book *Sonia Sotomayor: A Judge Grows in the Bronx* by Jonah Winter.

Directions: Write three topic sentences about the topic: one using a sentence type, one including an appositive, and one starting with a subordinating conjunction.

Topic: Sonia Sotomayor

1. How did Sonia Sotomayor become a Supreme Court Justice?
2. Sonia Sotomayor, the first Latina Supreme Court Justice, has overcome significant obstacles.
3. Although she came from humble beginnings, Justice Sotomayor was appointed to the highest court in the U.S.



Points to bear in mind ...

- **Model** a new strategy for students **orally**, using **familiar content**.
- Guide students to **practice** the strategy **orally** and **collectively** before having them do it independently.
- Embed writing activities in **content** you're teaching.
- When planning activities, write out **anticipated student responses**.
- Make sure students have the **content knowledge** they need.
- **Differentiate** activities for different ability levels but use the same content.
- **Return** to strategies that have already been covered.
- Consider taking an **online course** offered by The Writing Revolution organization.

Also: weave writing activities into
content-area instruction.



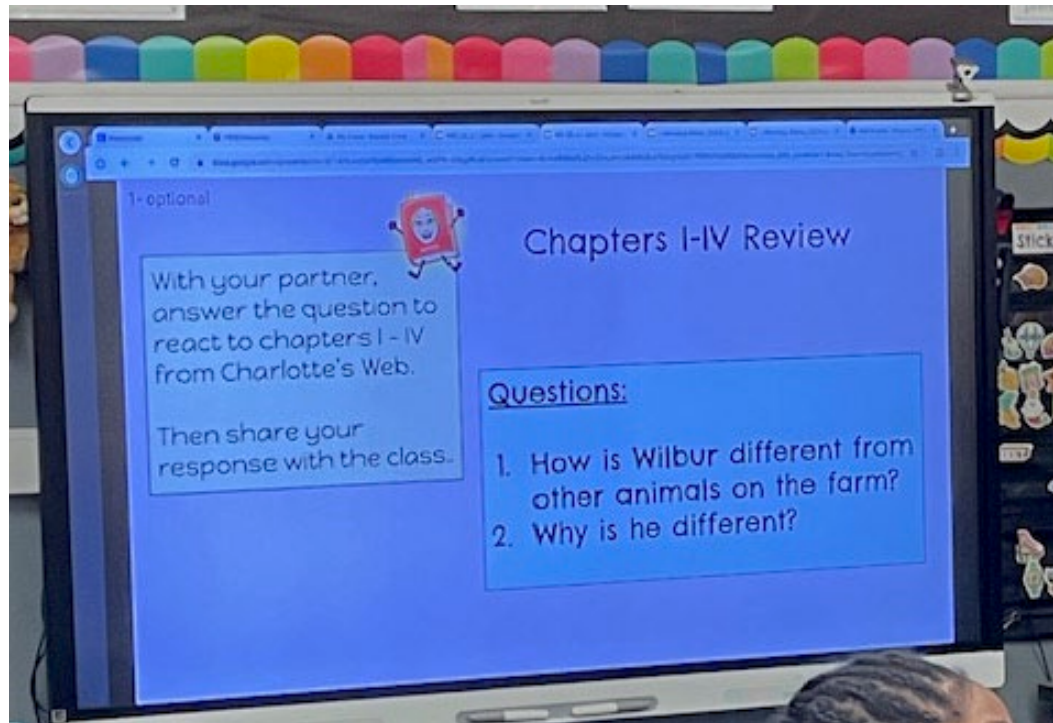
This isn't just a way
of teaching writing.

It's a way of *teaching*.

Charlotte's Web, 3rd Grade
Monroe, Louisiana



Cassidy Burns



T: So, keeping that idea about how Wilbur is different from those other animals, I want to take you into this next activity.

Let's just review, we have our three favorite conjunctions that we've practiced all year long. ...

Because, But, and So

2- workbook page 74

Because tells why or gives a reason.

But is used to show a change of direction.

So tells the result, or effect, of something.

Always check each sentence for:

- Capital letter at the beginning of the sentence
- Proper nouns are capitalized
- Commas are used correctly
- Punctuation at the end of the sentence
- Correct content

because, but, & so

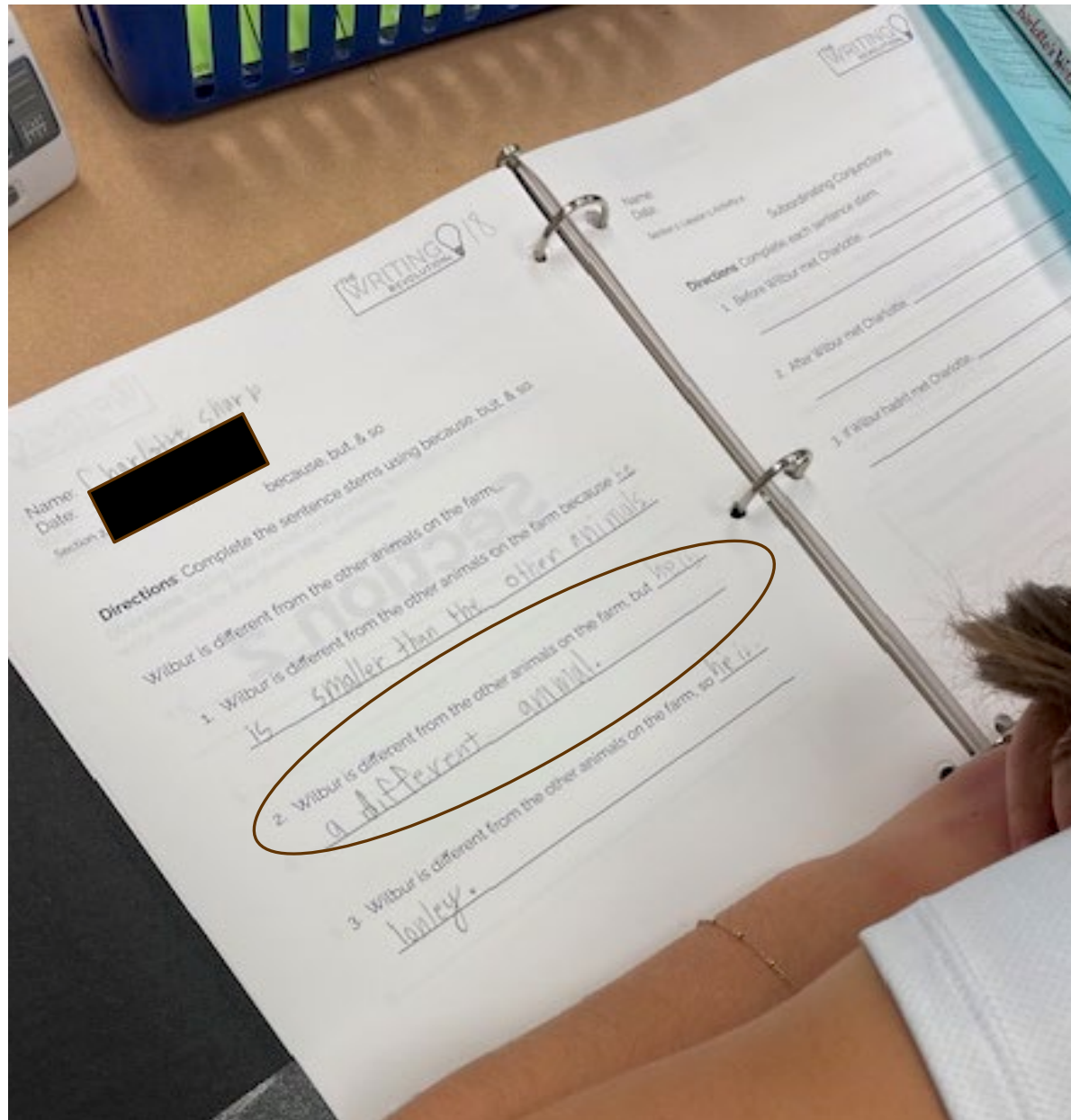
Directions: Complete the sentence stems using because, but, & so.

Wilbur is different from the other animals on the farm.

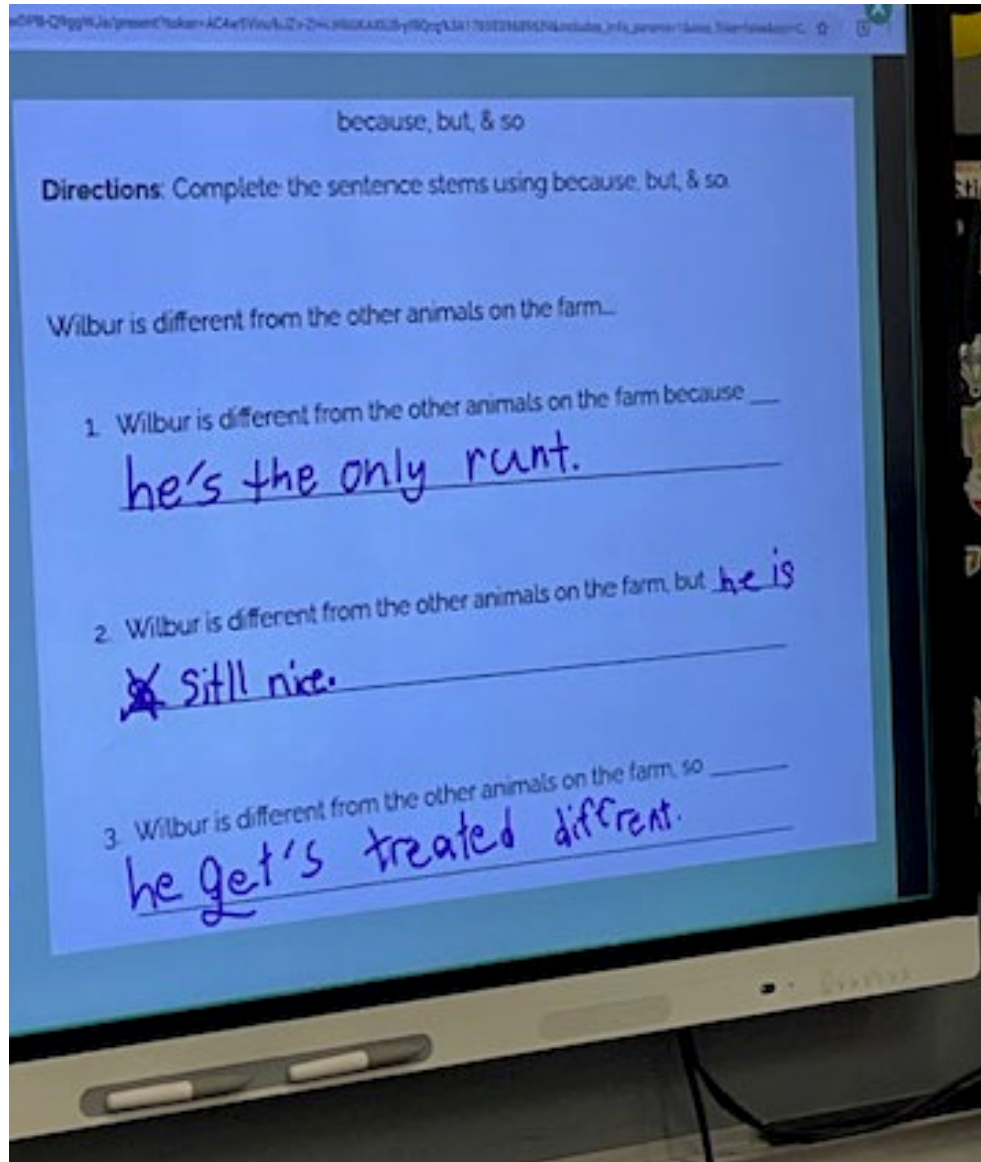
1. Wilbur is different from the other animals on the farm because ____

2. Wilbur is different from the other animals on the farm, but ____

3. Wilbur is different from the other animals on the farm, so ____



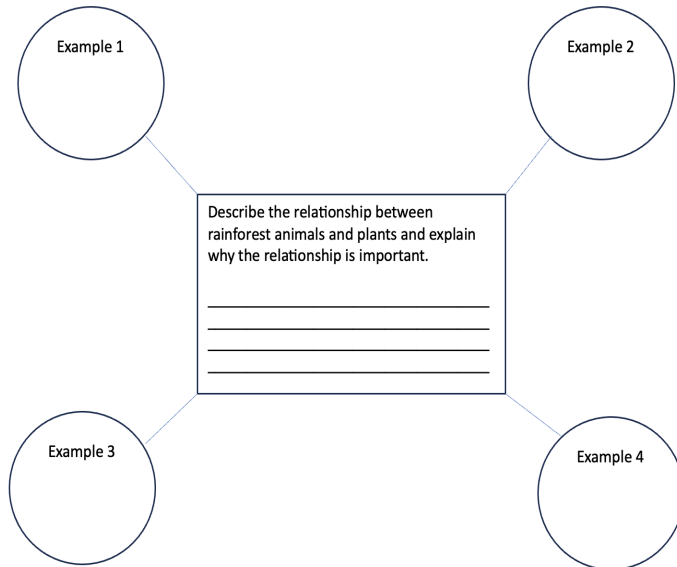
T: Is that a change of direction?
So, we want something opposite
... Those ideas are almost the
same.



- Students read the first stem chorally.
- T picks a student to read his answer.
- T asks class, “Is that true? ... Does it fit with the conjunction?”
- T has student write answer on the board.
- T asks for other answers, has students compare and discuss them.
- Repeats the process with the next two stems.
- T briefly points out errors in spelling and punctuation and has students correct them.

“Revolutionizing” Existing Materials

Original activity:



Revolutionized activity:

Directions: Using key words and phrases, write details for the given topic sentence.

T.S. Rainforest animals and plants are highly dependent on each other.

ants 1.

Orchid bees 2.....

Capuchin monkeys 3.....

tree frogs 4.....

Caveat: This method only works if the curriculum is focused on CONTENT—not comprehension skills.



Writing instruction can have dramatic effects—even at the high school level.



Newsletters

The Atlantic

U.S.

The Writing Revolution

For years, nothing seemed capable of turning around New Dorp High School's dismal performance—not firing bad teachers, not flashy education technology, not after-school programs. So, faced with closure, the school's principal went all-in on a very specific curriculum reform, placing an overwhelming focus on teaching the basics of analytic writing, every day, in virtually every class. What followed was an extraordinary blossoming of student potential, across nearly every subject—one that has made New Dorp a model for educational reform.

Danny's Writing: Before The Writing Revolution



Topic: Explain why we study the past.

We study the past because
it's good to learn about things that happen
years ago. In history we learn all about
the past. We learn about wars that
happened years ago, how many people died, generals,
what countries were in them. The past
~~is full of people~~



Danny's Writing: After The Writing Revolution



Topic: Conquest of the Americas

Thesis Statement:

While some view the conquest of the Americas as a positive event, without question it had a negative impact.

Main Idea	Details
¶1. Introduction	G.S. history/controversy Sp. St. debate = Sp. conquest Th. St. Pros vs. (neg)
positive ↓ ¶2. T.S.	domestic animals = horses, sheep + cattle + pigs Intro alphabet + new ideas = law + sci. conquest → cult. diffusion (ex crops) (Doc A) econ/new business + trade (Doc B)
negative ↓ ¶3. T.S.	Columbus → genocide + cruelty + slavery diseases killed millions C. America / AS → 2 million (Doc C) forced/convert to Christianity → torture + murder
¶4. Conclusion	Rephrase Th. St. conquest = brutal New Sp. St. disease + abuse New G. S. debated for years



Throughout history, there have been many controversies. One such debate is over the Spanish conquest of the Americas. While some view the conquest of the Americas as a positive event, without question, it had a negative impact.

Some claim that the Americas benefitted from the Spanish conquest. First, the Spanish introduced domesticated animals such as horses, sheep, cattle and pigs, to the Native Americans. In addition, the Spanish introduced the alphabet and new ideas in law and science. The conquest of the Americas led to the spread of



Thank you!

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