

Research-Based ELL and STEM Strategies

Speak Agent is a [Research-Based Design Certified](#) product line that accelerates learning of key academic concepts and develops math and science communication skills. We intentionally designed each activities as vehicles to apply specific research-based strategies curated by [the Learner Variability Project](#). These **Content+Language™** strategies provide the learning sciences basis for all student work in Speak Agent. These strategies are organized into our unique [Academic Language Learning Model](#). In addition to the research-based ELL learning strategies, Speak Agent also provides a [wide variety of learning supports](#) for ELL, low-SES, and exceptional learners.

Workspaces: A Deeper Dive

In partnership with Digital Promise, we co-developed a tool for deeper exploration of each active learning strategy. The workspaces are tools for quickly finding additional resources such as classroom videos from educators like you, articles, examples, research citations, and many, many more strategies than we can possibly fit on this page!



ELL Strategies Workspace

Learn more about effective academic content and language integration strategies for English Learners:

[Visit ELL Workspace](#)



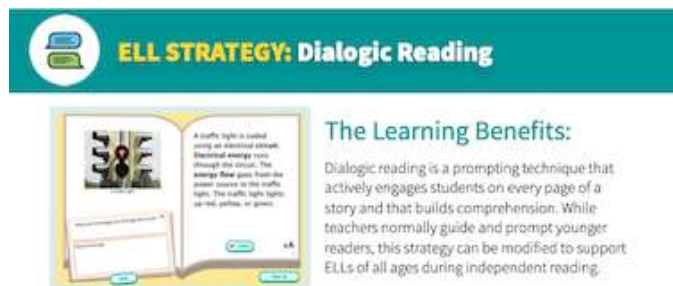
Math Strategies Workspace

Learn more about effective teaching strategies for Math+Language concept mastery, modeling, and reasoning:


[Visit Math Workspace](#)

The following represent just a small sampling of the 36 research-based ELL and STEM strategies used in Speak Agent:

Dialogic Reading



ELL STRATEGY: Dialogic Reading



The Learning Benefits:

Dialogic reading is a prompting technique that actively engages students on every page of a story and that builds comprehension. While teachers normally guide and prompt younger readers, this strategy can be modified to support ELLs of all ages during independent reading.

Strategy Brief ([PDF](#))

It's not just for early learners! Dialogic reading benefits math and science learners of all ages.

Manipulatives: Sentence Construction



ELL STRATEGY: Manipulative Sentence Construction



The Learning Benefits:

Students activate mental processes and deepen their understanding of sentence formation by manipulating sentence parts and structure. This strategy is especially helpful for ELLs struggling with word order. It works well with both physical and virtual representations of sentence parts.

Strategy Brief ([PDF](#))

A strategy for English Learners that also supports math and science communication and reasoning.



PD Video (3m)

Learn how this strategy supports English Learners — and all STEM learners — along with tools for implementing it in your virtual or physical classroom.

[Link to Google Jamboard cited in the video >>](#)

Sentence Frames

ELL STRATEGY: Sentence Frames and Stems

The Learning Benefits:

Sentence frames and stems support academic writing and discourse and also provide context for applying academic vocabulary and syntax. This helps students to structure writing and explain their thinking, with particular benefits for ELLs.

Strategy Brief ([PDF](#))

It's not just for early learners! Dialogic reading benefits math and science learners of all ages.

Real-World Math

MATH STRATEGY: Real-World Math

The Learning Benefits:

By connecting math to a relatable physical, social, or cultural context and/or an authentic purpose, students see how math is applicable to their daily lives. When students see relevance in the content they are studying, it increases their motivation.

Strategy Brief ([PDF](#))

It's not just for early learners! Dialogic reading benefits math and science learners of all ages.

Student-Generated Problems

MATH STRATEGY: Student-Generated Problems

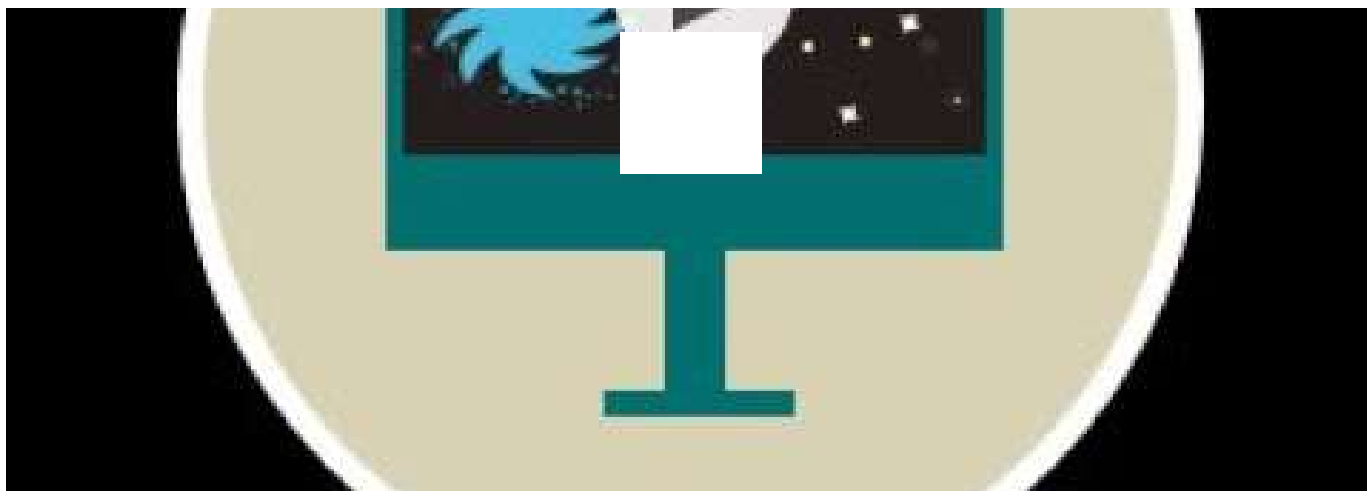
The Learning Benefits:

When students create their own math problems, they connect new concepts to prior background knowledge and lived experiences. Student-generated problems apply both conceptual and procedural knowledge. Moreover, the creative process inherently promotes metacognition.

Strategy Brief ([PDF](#))

It's not just for early learners! Dialogic reading benefits math and science learners of all ages.





PD Video (3m)

Learn about this highly effective strategy for math modeling and communication, plus digital tools for you to moderate the entire process.

[Link to ideas list cited in the video >>](#)

Visual Representations

MATH STRATEGY: Visual Representations



The Learning Benefits:

Visual representations such as diagrams, charts, graphs, illustrations, and animations accelerate and deepen understanding of virtually any math concept, as well as relationships among related concepts. This strategy applies from early math up through algebra, geometry, and statistics.

Strategy Brief ([PDF](#))


It's not just for early learners! Dialogic reading benefits math and science learners of all ages.

Writing Models

MATH STRATEGY: Writing Models

The Learning Benefits:

When students review writing samples relevant to the math content they are learning, they can improve their math writing skills. By comparing their own writing against models, students learn to identify which elements are most effective in communication.



Strategy Brief ([PDF](#))

It's not just for early learners! Dialogic reading benefits math and science learners of all ages.

[Back to top](#)

TABLE OF CONTENTS

See concrete examples of how key strategies are implemented in Speak Agent:

- [Dialogic Reading](#)
- [Manipulatives: Sentence Construction](#)
- [Sentence Frames](#)
- [Real-World Math](#)
- [Student-Generated Problems](#)
- [Visual-Representations](#)
- [Writing-Models](#)

ELL Workspace

[Find more ELL learning strategies here >>](#)

Math Strategies Workspace

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