the appearance of those letters and their corresponding sounds in shared readings and in children's dictated, shared, and independent writing. See the discussion of phonics and word recognition in the overview of the span and the kindergarten section of this chapter.

Fluency

In transitional kindergarten, children make progress toward rapid recognition of important sight words (such as their names) and letters of the alphabet. They hear books read aloud fluently by adults daily, and they participate in chanting along with the adult. They mimic prosody and appropriate rate as they engage in "reading" favorite familiar texts.

An Integrated and Interdisciplinary Approach

The strands of English language arts and literacy (Reading, Writing, Speaking and Listening, and Language) are integrated among themselves as well as with content learning and, for EL children, with English language development. Guests entering the classroom might have difficulty determining whether they are witnessing science, language, or writing instruction, for example, because in fact all three likely occur at the same time. Snapshots 3.1, 3.2, and 3.3 provide brief glimpses at integrated instruction in transitional kindergarten classrooms.

Snapshot 3.1. *Tingo Tango Mango Tree*
Integrated ELA and Mathematics in Transitional Kindergarten

Ms. Watson reads *Tingo Tango Mango Tree* by Marcia Vaughan to her transitional kindergarteners seated in front of her at the carpet area. After a lively discussion of the story, she asks the children what they notice about the animals' names. She repeats them and encourages the children to join her in saying the animals' names aloud. The iguana is named Sombala Bombala Rombala Roh. The flamingo is Kokio Lokio Mokio Koh. The parrot is Willaby Dillaby Dallaby Doh. The turtle is Nanaba Panaba Tanaba Goh. The bat is Bitteo Biteo. They repeat the names several times and comment that most of the names are longer than any they have ever heard! Together, with Ms. Watson's support, the children clap the syllables in each character's name. They determine that all the names except the bat's are composed of ten syllables! Bitteo Biteo contains six syllables. Ms. Watson suggests the children clap the syllables in their own names. Modeling her name first, she claps twice noting that Wat-son has two syllables. The children turn to a neighbor to share and confirm the number of syllables in their own names.

Ms. Watson asks each individual to clap his or her name for the group, and corrective feedback is gently, but clearly, provided. The children next organize themselves into groups in different areas of the room. Those with one-syllable names stand in one area, those with two syllables stand in another area, and so on. With Ms. Watson's guidance, the children form a *human histogram*, defining the term. With a common starting point, they line up with all children having one syllable in one line, those with two-syllable names in another, and so on. They converse with their peers about their observations of the lines. Which line has the most children? Which has the fewest? What does the length of each line mean?

Following the activity, the children return to their tables and write their names on sticky notes. These will be used to construct a paper histogram. The children affix the notes to a group chart, creating columns above the appropriate number on the horizontal axis. For example, Jean places her sticky note in the column above the number "1," signifying that her

Snapshot 3.1. *Tingo Tango Mango Tree* Integrated ELA and Mathematics in Transitional Kindergarten (cont.)

name consists of one syllable. Michi places her sticky note in the column above the number "2," Makayla places her sticky note in the column above the number "3," and Jeremiah places his sticky note in the column above the number "4." The children talk with one another about their observations of the developing histogram, exclaiming over the data. Ms. Watson listens to the children as they converse informally, and she purposefully prompts them to use specific terms to describe the mathematical ideas (such as *more than*, *fewer than*, *the same number as*). As needed, she models using mathematical language for her EL students and then asks them to say the words with her.

Ms. Watson then gathers all the children together at the carpet area and solicits comments about any conclusions they are drawing. The children's comments are written on the chart alongside the histogram. For example, one child observes that "There are more people with two-syllable names than any other number of syllables." Another child observes that "There are the same number of children with one-and four-syllable names." A few children suggest that the story character's names be included on the graph, and they all chant the unusual names together, giggling as Ms. Watson creates sticky notes for them. Together they decide the horizontal axis needs to be extended to have a place for 10-syllable names, and they affix each character's sticky note where it belongs. Strategically, and by popular demand, the teacher rereads the book several times over the next several days and engages the children in syllable clapping. The book and chart remain accessible for a couple of weeks, so students can continue to look at and converse about them informally.

Resource

Vaughan, Marcia. 1995. *Tingo, Tango, Mango Tree*. Englewood Cliffs, NJ: Silver, Burdett Press.

CA CCSS for ELA/Literacy: RL.K.2b; RF.K.2b; W.K.2; SL.K.1, 6; L.K.6

CA ELD Standards: ELD.PI.K.1, 2, 3, 5; ELD.PII.K.5

Related CA CCSS for Mathematics:

K.CC.5 Count to answer "how many?" questions . . .

K.CC.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group . . .

K.MD.2 Directly compare two objects with a measurable attribute in common to see which object has "more of"/"less of" the attribute, and describe the difference.

K.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

Related California Preschool Learning Foundations (60 months):

Reading 2.1 Orally blend and delete words and syllables without the support of pictures or objects.

Number Sense 1.4 Count up to ten objects, using one-to-one correspondence . . .

Number Sense 2.1 Compare, by counting or matching, two groups of up to five objects and communicate, "more," "same as," or "fewer" (or "less").

Algebra and Functions 1.1 Sort and classify objects by one or more attributes, into two or more groups . . .

Source

Snapshot based on

Yopp, Hallie K., and Ruth H. Yopp. 2000. "Supporting Phonemic Awareness Development in the Classroom." *The Reading Teacher* 54 (2): 130–143.

Snapshot 4.5. Mathematical Word Problems Designated ELD Connected to Mathematics in Grade Two

In mathematics, Mrs. Cooper teaches her students to solve word problems, to explain their thinking, and to justify their arguments for solving a problem in a particular way. She models how to solve word problems and she thinks aloud for students, using drawing and other visuals as she does to make her thinking process visible. She models how to identify language that reveals what kind of word problem she is solving (e.g., *How many are left? How many are there altogether? How many more are there?)*, how to identify the important information for solving the problem, and how to apply math content knowledge to solve the problems. She provides many opportunities for her students to practice; they collaboratively solve word problems with peers and explain how they solved the problems, using their drawing and writing to justify their assertions.

During designated ELD, Mrs. Cooper works with a small group of ELs at the Expanding level of English language proficiency to help them understand and gain confidence asking and answering questions about problem solving, using mathematical language. She asks them to explain to one another in partners how they solved the word problems they worked on during math instruction, and she posts a few text connectives (first, then, next) as well as a few subordinating conjunctions (because, when, so) to support them in their explanations. She tells them that it is the responsibility of the listening partner to ask clarifying questions when things are not clear or are partially accurate, and she draws their attention to their "collaborative conversations" chart, which has phrases and sentence stems they can use (e.g., Can you explain that again? I'm not sure I understood what you meant by ___.) She listens carefully as the students explain their thinking, and she provides "just-in-time" scaffolding when students have difficulty asking or answering questions.

During math instruction, Mrs. Cooper observes her EL students as they continue to interact with one another while solving word problems, and she provides judicious corrective feedback to ensure that the children are exchanging information and ideas effectively and using mathematical language appropriately while also applying correct math practices and content knowledge.

CA ELD Standards (Expanding): ELD.PI.2–3.1, 3, 12b

Related CA CCSS for Mathematics:

1.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

MP.1 Make sense of problems and persevere in solving them.

MP.2 Reason abstractly and quantitatively.

MP.3 Construct viable arguments and critique the reasoning of others.

Snapshot 5.4. Developing Mathematical Language Designated ELD Connected to Mathematics in Grade Four

In mathematics, Mr. Jones structures activities in which students work together to explain why they are doing things a certain way or to argue for particular viewpoints. He understands that meaning in mathematics is made not just through language but also through symbolic mathematical expressions and visual diagrams. He has observed that his students are most comfortable working through math problems by using language they are familiar with but that their mathematical language expands as they learn new concepts. Therefore, he accepts the language his students use as valid, and he encourages them to use familiar, everyday language as they engage in math practices. At the same time, he teaches his students precise mathematical terms, and he carefully provides scaffolding to stretch his students' language while focusing primarily on reasoning and building up his students' mathematical knowledge. For example, during mathematics instruction, he might recast what a student is saying in order to stretch the student's language.

Arturo: The rectangle has par . . . parallelogram . . . and the triangle does not have parallelogram.

Mr. Jones: You're saying that a triangle is not a parallelogram. Is that what you are saying?

This *revoicing* of the student's explanation validates the student's ideas and supports his participation, maintains the focus on mathematics, and models for the student a way of using language that more closely approximates mathematical academic discourse.

During designated ELD time, Mr. Jones helps his EL students who are new to English and at the early Emerging level of English language proficiency explain their mathematical thinking by drawing attention to the verbs used to identify (e.g., is/are) and those used to classify (e.g., has/have) geometric shapes. He has his students work in pairs to ask and answer questions about the shapes. He shows them how in English, when we ask questions, the order of the subject and verb are reversed, and he supports their use of the new language with sentence frames:

Is this a (shape)? This is a (shape) because it has (attributes). This (shape) reminds me of ___ because it ___.

In this manner, Mr. Jones supports his students to develop some of the language needed to convey their mathematical understandings. In subsequent lessons, he will help his newcomer ELs add on to the language they have developed, so they can convey their understandings of fourth-grade mathematics. Mr. Jones observes his students closely during math instruction to determine when and how they are applying their learning of the mathematical terms and the related grammatical structures, so he can provide just-in-time scaffolding and continue to plan designated ELD instruction that meets his students' developing needs.

CA ELD Standards: ELD.PI.4.1, 3, 11a, 12a; ELD.PII.4.3
Related CA CCSS for Mathematics:
4G (Geometry).1.2 Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

Snapshot 5.4. Developing Mathematical Language Designated ELD Connected to Mathematics in Grade Four (cont.)

Sources

Adapted from

Moschkovich, Judit N. 1999. "Supporting the Participation of English Language Learners in Mathematical Discussions." *For the Learning of Mathematics*, 19 (1): 11–19.

Moschkovich, Judit N. 2012. *Mathematics, the Common Core, and Language: Recommendations for Mathematics Instruction for ELs Aligned with the Common Core.* Understanding Language.

Schleppegrell, Mary J. 2007. "The Linguistic Challenges of Mathematics Teaching and Learning: A Research Review." *Reading & Writing Quarterly* 23 (2): 139–159.

ELA/Literacy and ELD in Action in Grade Four

The research-based implications for ELA/Literacy and ELD instruction were outlined in preceding sections of this chapter and in chapter 2 of this *ELA/ELD Framework*. In the following section, detailed examples illustrate how the principles and practices look in California classrooms. The examples provided are not intended to present the only approaches to teaching and learning. Rather, they are intended to provide concrete illustrations of how teachers might enact the CA CCSS for ELA/Literacy, the CA ELD Standards, and other content standards in integrated ways that support deep learning for all students.

Both the CA CCSS for ELA/Literacy and the CA ELD Standards acknowledge the importance of conducting research to build deep knowledge of a topic and writing to convey this growing knowledge.

Both the CA CCSS for ELA/Literacy and the CA ELD Standards acknowledge the importance of conducting research to build deep knowledge of a topic and writing to convey this growing knowledge. For example, W.4.7 states that students conduct short research projects that build knowledge through investigation of different aspects of a topic; *and* ELD.PI.4.10a (Br) states that students write longer and more detailed literary and informational texts collaboratively and independently using appropriate text organization and growing understanding of register. In integrated ELA and social studies, conducting and writing about research involves engaging in research practices and learning to use language in particular ways—interpreting information through wide and careful reading on a topic, discussing different aspects of the topic both informally and more formally, and writing about what has been learned to explain, describe, or persuade.

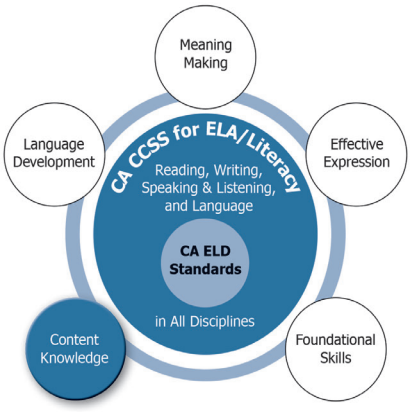
Accordingly, teachers prepare an artfully integrated sequence of lessons that scaffolds students' abilities to discuss their ideas; guides students to analyze and evaluate what they read or hear in order to develop a discerning eye for evidence; and leads students to produce oral and written language that represents their growing understandings while stretching them to use the linguistic resources that are typical of and highly valued in history informational texts. Teachers select texts appropriate for research tasks that are interesting and engaging, and they also provide opportunities for students to select texts, web-based resources, and other media sources for research projects on their own as these foster a sense of self-efficacy in students and also build their capacity to be self-reliant. In addition to using print texts, students use multimedia resources (e.g., the Internet, digital media, photographs) and interact with one another collaboratively.

Teachers ensure that the texts used represent a variety of cultures and that the cultures of their students are accurately and respectfully depicted. All students need to see themselves positively reflected in the texts they read and encounter inspirational role models they can emulate.

Content Knowledge

Reading literature and informational texts and engaging in research in English language arts and other subjects help students develop content knowledge and develop understandings of the ways in which reading and writing are employed across the disciplines. Students in grade seven read and write increasingly complex texts and engage in independent reading programs.

Snapshot 6.8 presents a designated ELD lesson in which the phrases and structures useful for making arguments in mathematics are examined.



Snapshot 6.8. Constructing and Critiquing Arguments in Math Designated ELD Connected to Mathematics in Grade Seven

In grade seven, students engage in two mathematical practices that focus on communication: (1) constructing viable arguments and critiquing the reasoning of others and (2) attending to precision. The students are called upon to justify their conclusions, communicate them to others, and respond to the arguments of others. In addition, they listen to or read their peers' arguments, decide whether they make sense, and ask useful questions to help classmates clarify or improve their arguments. Middle school students, who are learning to use key terms carefully and examine claims, try to communicate precisely to others, using clear definitions and reasons in both discussion and in writing.

During designated ELD instruction, teachers work with their English learners to help them gain confidence using the language needed to comprehend, construct and justify arguments, and communicate ideas clearly. Teachers can provide EL students opportunities to practice using words, phrasing, and discourse conventions useful for discussing mathematical content and making sound mathematical arguments. Some of this language includes introductory adverbial phrases (e.g., *In this case, As shown previously*), or cause/effect sentence structures (e.g., *Due to/as a result of _____, I expect/conclude that _____*). Teachers can enhance English learners' ability to engage in dialogue about mathematical ideas by providing structured and meaningful practice using a variety of question openers and extenders (e.g., *Could you clarify what you mean by _____? I'm not sure I agree with you, but let me explain what I mean . . .*). For example, while the rest of the class is working on independent tasks in groups or pairs, teachers might pull a small group of ELs at similar English language proficiency levels to discuss the language resources useful for engaging in conversations about mathematics topics, encouraging ELs to engage in small-group discussion using the mathematical language. This way, teachers can focus strategically on the specific language their EL students need to develop in order to fully engage with the math content and strengthen their ability to use it during whole class and small-group tasks.

During mathematics instruction, teachers monitor students and provide judicious corrective feedback to ensure they are using the language appropriately while also applying the correct mathematical practices and content knowledge.

CA ELD Standards: ELD.PI.7.1, 3, 4, 5, 11a, 12; ELD.PII.7.3–7
Related CA CCSS for Mathematics:
MP.3 Construct viable arguments and critique the reasoning of others.