# Research base
## Amplify ELA: California Edition

The challenges that American middle school students experience in learning to read and write at grade level are well documented. Only about a third of eighth-graders are considered proficient readers and writers at their grade level (NAEP 2011), and this lack of basic literacy skills is a major reason why nearly 7,000 young people drop out of high school every day (Alliance for Excellent Education, 2006).

As students progress from high school to college, research suggests that most high school graduates are not prepared for college work. Of the 1.8 million high school graduates who took the 2013 ACT, only 26 percent met the college-readiness benchmarks in all four academic subjects tested (ACT, Inc., 2013; Bidwell, 2013). Consequently, more than 50 percent of those entering their freshman year in a two-year college and about 20 percent of those entering a four-year college need remediation (Complete College America, 2013). Unfortunately, most students who start in remediation do not make it through college-level gateway courses while most may never even graduate (CCA, 2013).

College coursework involves much more complex materials than those used in high school classes. Course readings are lengthy and dense and require students to read independently and determine what is important. Students need strong study skills and note-taking strategies to be able to absorb the large amounts of materials covered in the texts and in lectures. In addition, assignments often require students to compose written responses that demonstrate their understanding of relevant concepts. Class discussions require students to delve further into the materials, rather than simply review readings and assignments. Exams also demand that students apply concepts to different situations and articulate their knowledge in writing. The skills needed for college coursework reflect those outlined in the California Common Core State Standards (CA CCSS) and those assessed on college entrance exams such as the SAT and ACT. A student's performance on these standardized tests is generally considered to be an indicator of their academic performance in their freshman year of college.

The CA CCSS assessments offer a glimpse of what skills students must master to be prepared for college-level work. They ask students to read a passage of text and respond to several questions that require them to go back into the passage and identify specifics about key elements for their answers. This task aligns with the CA CCSS for ELA/Literacy on determining key ideas and details of given texts. The assessment also requires students to integrate and evaluate content presented through various media and compose responses that demonstrate their ability to write clear, coherent arguments to support claims. Such tasks require skills outlined in the anchor standards on text types and purposes, production of writing, and researching to build and present knowledge (CCSS, 2014). Several questions ask students to determine and interpret the meaning of words or phrases through context, which are skills emphasized in the anchor standards about knowledge of language, conventions of standard English, and vocabulary acquisition and use. Mastery of these skills requires a curriculum that is not only rigorous, but also flexible enough to meet the needs of students with varying abilities and backgrounds. Amplify seeks to provide such a curriculum.

**Amplify's ELA curriculum**

A primary goal of Amplify ELA: California Edition is to help all students meet the demands of the CA CCSS. The curriculum content encourages students to concentrate, dig deeper, and spend more time reading so as to enhance and expand their knowledge about a given topic. Additionally, teachers are empowered with new teaching tools that provide continuous, timely, personalized feedback that will the support delivery of instruction tailored to individual student's learning needs.

This report presents first an overview of the curriculum followed by a description of how a typical lesson would be implemented in the classroom, with an outline of the lesson's scope and sequence of skills. Next, we discuss key research evidence supporting the instruction of the targeted skills and the principles underlying the curriculum, all designed to equip students with the knowledge and skills necessary for success in college and careers.

**Genre of text and skill focus**

The curriculum comprises seven units per grade (sixth, seventh, and eighth), designed for implementation over the span of a full academic year. Each unit focuses on a particular genre of text, (e.g. poetry and short stories,) and a set of skills to be developed, (e.g. point of view).

The California Common Core-based instruction focuses on texts that meet the requirements of text complexity, the standards for topical significance, and richness of information. Amplify has collaborated with experts in literature, history, and science to carefully select the texts for each unit, determine their appropriateness for close reading, and write text-dependent questions that will help middle school students uncover the meaning of the texts.

## Implementation model

Implementation of the Amplify ELA curriculum involves a comprehensive inclusion of the following: instruction, practice, revision, sharing, and feedback. Each daily lesson plan includes an overview and lesson objectives for the teachers and students. These lesson plans are called Lesson What, Lesson Why, and Targeted Skills. They also include some guidelines to prepare for the lesson, specific instructional strategies for skills in each unit, as well as suggestions for ensuring effective practice and making adjustments to meet the individual needs of different students.

The lesson begins with a five-minute independent assignment, during which students have an opportunity to complete the reading assignment for that day, or work on vocabulary activities that serve as a warm-up for the day's lesson. The targeted vocabulary words are key words in the unit, and the activity provides two contextual clues that can help students figure out the meaning of the word.  The goal is to complete as many activities as they can, accurately, within the five minutes allocated.

**Direct targeted instruction**

During the next 8-18 minutes of class, the teacher typically provides targeted instruction on specific skills in the context of a designated text. The teacher can engage the whole class in a guided discussion of a short story, eliciting specific examples from the text that collectively provide evidence of how a character changes in the story. The teacher can also have a student read aloud a passage and draw the students' attention to how the author uses verb tense to show what happens in the past versus the present. The teacher can then engage the class in an exercise they complete together. For instance, to illustrate the sequence of events, the teacher can draw a timeline on the board, and students can then work in pairs to write two key events or details from the story on sticky notes and place them on the timeline. Such targeted instruction is one of the most effective ways of teaching academic skills (Archer and Hughes, 2011).

**Practicing targeted skills**

Following the whole-class activity, a segment of time (18-30 minutes) should then be devoted to group work. It is during these work sessions that students can then practice the skills the teacher has already introduced. This time may also be designated as journal writing time, and students may write independently, practicing the targeted skills.

During these small-group or independent work sessions, the teacher can observe each group offering comments or raising questions for the group to consider. The teachers can provide over-the-shoulder-conferences (OTSCs) to individual students, affirmation comments, skill-reminder comments, or give them specific revision assignments on a particular sentence or a passage in their writing. When students are guided through the learning process with clear objectives for learning the new skill—through explanations, demonstrations of the targeted skill, and practice with feedback until mastery has been achieved—they are likely to experience initial success and develop confidence to work independently. Moreover, teachers can provide immediate, timely feedback about the accuracy of their students' work so that the likelihood of the continual practice of errors is minimized (Archer and Hughes, 2011).

Exchange of work and peer evaluations is a common practice both in college and in numerous professions. A regular routine of sharing with peers early in one's educational career offers a valuable opportunity for a student to develop how best to incorporate and provide constructive feedback.

**Sharing and feedback**

Group or individual work is followed by a segment of time for sharing (5-10 minutes), which provides the students with the opportunity to learn from their peers, ask questions, and gain recognition for their work. Students practice giving constructive feedback focused on the work that is shared—a routine that will also foster a sense of classroom community of learners. Furthermore, when students listen and respond with specific, skill-related feedback, they strengthen their ability to read closely, analyze text, and learn to engage in interactions with other writers and readers, thereby developing an awareness of a writer's style and voice (Kesler, 2012).

Most lessons end with a closing activity (1-4 minutes), like asking the students if they noticed any connections to their peers or asking them to further reflect on the day's work. Given the emphasis on writing skills in the CA CCSS, students write frequently in their journals, and teachers should provide individual comments on student work, and assign revision tasks at least once a week.

**Use of digital tools**

We believe that the effectiveness of Amplify's curriculum will be maximized when implemented in its digital form, but we also recognize that many schools may not have the infrastructure or high-speed wireless connectivity to support a fully digital curriculum. To encourage the use of Amplify's curriculum widely in schools across California, we have developed a flexible curriculum that can be implemented in its print version for scenarios when the digital version cannot be fully implemented. The curriculum is designed not only to foster student engagement with learning materials, but also to make the contents accessible to as many students as possible—including students with diverse learning needs. For example, the unit focused on informational texts includes lessons in which students study neurology through reading and writing about *Phineas Gage: A Gruesome but True Story About Brain Science* by John Fleischman. While teaching this unit, the teacher has the option of alternating lessons with Quest days. The *Neuroscience: Perception Academy* Quest, like other Quests in the curriculum, is an immersive, interactive educational experience in which students can play out or enact the lessons that they have learned. It allows students to experience a school day as if they have one of the perception disorders in the book text, *The Man Who Mistook His Wife for a Hat* by Oliver Sacks, while reading excerpts from this book. Students have the opportunity to reinforce their learning through audio and video, experience reality simulations of disorders, and role-play individuals with specific disorders. Research has shown that such simulations are effective in helping students understand elaborate processes, particularly those that are not typically observable with the naked eye (Reigeluth and Schwartz, 1989).

Facility with using digital tools in diverse ways—whether to communicate a message, to increase the effectiveness of a message, or to accomplish any given task—is a critical skill that can increase one's productivity as a member of the workforce.

## Scope and sequence of skills

Instruction first focuses on developing several key habits and skills. Reading habits and skills are taught and practiced in order to simultaneously build and strengthen writing habits and skills.

| Establish foundational habits | |
| --- | --- |
| • Practice reading and writing.<br>• Stake claims, debate, and exchange viewpoints. | • Practice rereading and revising.<br>• Give and take feedback.<br>• Experiment using different words. |
| **Read closely, focus, and strengthen voice** | **Develop sentence style and voice** |
| • Identify characters, events, topics, facts, ideas, and settings in a variety of texts.<br>• Assume viewpoints of authors/characters, notice unique perspectives, and identify with characters.<br>• Focus on passages, recognize showing vs. telling, and learn how authors develop character, describe, explain, and develop claims.<br>• Identify sensory detail in text and describe the effects they have on the reader.<br>• Examine how writers vary sentence beginnings, manipulate subjects/ predicates, achieve different styles, and establish pace. | • Experiment with narrator's voice and character's voice to learn to use voice purposefully.<br>• Practice writing in first, second, and third person.<br>• Recognize and replace clichés.<br>• Engage multiple senses by using sensory details to recount events in writing.<br>• Use detail purposefully and connect observation to thoughts or emotion.<br>• Describe moments/settings, express ideas/claims, explain topics. |
| **Reading: dialogue and evidence** | **Writing: dialogue and evidence** |
| • Read and role-play dialogues.<br>• Analyze how authors use dialogue to develop character.<br>• Notice how authors balance dialogue with narration and use dialogue to move plot.<br>• Identify how writers show change and growth in characters.<br>• Observe how writers convey multifaceted characters and believable events. | • Identify relevant dialogue and evidence to support an opinion.<br>• Distinguish evidence from interpretation and balance them in writing.<br>• Determine passages that provide credible evidence to be linked to an argument.<br>• Paraphrase, use direct quotes, and clearly cite the source.<br>• Recognize and use strong verbs (minimize the verb "to be"). |

| Identify logical structure | Understand and build logical structure |
|---|---|
| • Focus on and summarize distinguishing moments.<br>• Establish sequence of events within a moment.<br>• Differentiate facts from inference.<br>• Select relevant details and describe evidence from multiple sources. | • Analyze logical structure in paragraphs/texts.<br>• Experiment with transitions, introductory paragraphs, sequence, conclusions, leads, and focus.<br>• Develop a claim.<br>• Experiment with different leads. |
| **Reading: setting and context** | **Writing: setting and context** |
| • Read closely for background information.<br>• Imagine sense of place, time, and atmosphere.<br>• Analyze word choice and imagery.<br>• Understand/analyze narrator's perspective and tone. | • Establish and define the parts of an argument.<br>• Sequence the parts of an argument.<br>• Use setting details/background information purposefully. |
| **Syntax/conventions (mechanics)** | **Syntax/usage** |
| • Capitalize proper nouns and first letter in a sentence.<br>• Identify punctuation and formats (e.g., paragraphs, dialogues, direct quotes).<br>• Use quotation marks, indentation, capitalization, appropriate, and formatting.<br>• Use dashes, ellipses and end punctuation. | • Identify compound and complex sentences.<br>• Correct fragments and run-on sentences.<br>• Use commas in a list and to indicate a pause.<br>• Recognize verb tenses, consistency of tense, logical tense in multi-paragraph pieces, and irregular verbs.<br>• Format and cite quotes from text/dialogues.<br>• Use appropriate subject-verb agreement. |

## Research evidence supporting scope and sequence of skills

Researchers have identified several characteristics of effective instruction that best position students and teachers to meet the demands of the CA CCSS in ELA curricula. These include curricular cohesion or logical sequence, in which materials and skills covered in one class contribute to and build upon what is taught in another class (Evans, Hartshorn and Anderson, 2010; Smagorinsky, 2008); emphasis on discussion practices that promote student inquiry and collaboration on complex tasks (Langer, 2001; Nystrand, 1997); and explicit instruction in writing (Graham and Perin, 2007) and reading comprehension strategies (Biancarosa and Snow, 2006). These characteristics are reflected in Amplify ELA scope and sequence of skills.

In addition, given the focus on writing skills in the CA CCSS, we have adopted and built upon the work of Writers' Express (WEX), a division of former Wireless Generation, now Amplify, which has been developing an effective writing curriculum for nearly two decades. Amplify's ELA curriculum is largely derived from the WEX program: Each unit and lesson integrates WEX's tested method of writing instruction and prompts teaching students to write about texts clearly and effectively, followed by extensive practice and feedback that enable students to internalize the skills. Thus, Amplify's curriculum utilizes writing instruction as a vehicle for improving reading skills (Graham and Hebert, 2010) and for promoting learning to meet the CA CCSS (Freedman 2003; Hawkins, 2006). This section highlights key research evidence that points to the importance of focused instruction on the skills outlined above.

### Foundational habits

The National Commission on Writing (NCW) and Reading Next, two research-based entities established to better implement effective adolescent literacy programs, both call for more time spent on reading, writing, and literacy instruction. The NCW recommends that the amount of time students spend writing should be at least doubled, that writing be assigned across curricula, and that more after-school time be used to further encourage writing. Education researchers and reading experts also suggest that students spend about *two to four hours* daily engaged in literacy-related learning, and that some of this time be spent with texts, focusing on reading and writing effectively (Biancarosa and Snow, 2004). Increased time for literacy instruction would enable teachers to provide more opportunities for students to practice (re)reading and (re)writing and to develop the foundational habits that characterize good readers and good writers.

### Close, focused reading

One effective approach to teaching students to read closely is for the teacher to read a text aloud while modeling his or her thinking processes—(e.g., to stop, think, jot down notes, talk) (Angelillo, 2003). Reading aloud not only engages students, but it also allows the teacher to specifically model various types of thinking, including expressing empathy for a character, trying to understand a character's motivations, noticing details and wondering what they might mean, and recognizing words and phrases that evoke particular thoughts or feelings in them as a reader (Angelillo, 2003; Ray, 1999).

**Developing a writer's voice and style**

Quality writing can serve as a model for teaching well-crafted writing, and carefully selected texts play an important role in informing students how to better their writing ability (Avery, 2002; Calkins, 1994; Graves, 1983). Students can develop an awareness of the rhythm and cadence that characterizes quality writing when listening to and reading literature (Ray, 2004). Studies on the effects reading has on writing indicate that a students' writing becomes influenced by the books they read—whether it is an emulation of the writer's style or the genre (Eckhoff, 1984); an incorporation of the literary traits and details (Dressel, 1990); the borrowing of plots, characters, or structure (Lancia, 1997); or the use of imagery often found in poetry (Langer and Flihan, 2000). In this process, students come to understand that writers carefully craft a text so that the reader would find it worthy of reading (Graves, 2004)—and in crafting their own writing, students develop their own voices as they think about the effect they intend to have on the reader (Graves, 1983). Writing teachers and experts assert that a voice is important to develop, as that is what motivates students to write—and thus writing is a chance for students to further express themselves clearly, communicating their ideas and observations to readers (Graves, 1983; Romano, 2004).

Effective writing, both in in the workplace and in college, requires one to clearly convey ideas concisely, coherently, and persuasively. By paying close attention to how writers craft their voice for different audiences and purposes, and by practicing how to respond to and write about informational texts, students can develop the type of voice necessary for formal, academic, and professional writing.

**Dialogue and evidence**

Researchers have demonstrated a strong relationship between oral reading fluency and silent reading comprehension (Danne, Campbell, Grigg, Goodman and Oranje, 2005). The automaticity and speed with which students read the words in a text are not only related to reading comprehension, but also to overall reading achievement (Rasinski, 2004, 2006). To provide a more authentic learning experience in fluency instruction, teachers can incorporate performance or role-play of texts (Young and Rasinski, 2009). Students are more likely to practice reading if they know that they will be participating in a Readers' Theatre— performing a reading in front of an audience—and research has demonstrated this approach to be engaging and motivating for students, leading to improved reading performance (Griffith and Rasinski, 2004). Moreover, having students analyze and identify with characters they read about leads them to a deeper involvement with the text (Dionisio, 1994). They gain a more nuanced understanding of the characters and recognize that these characters have personality traits, undergo changes and growth, and experience events that they know from their own lives (Bluestein, 2002; Clyde, 2003; Roser, Martinez, Fuhrken, and McDonnold, 2007).

To write well, students first need to be skillful readers of texts that can teach them how to further develop their craft (Murray, 1999). Gaining meaning from a text often requires students to go beyond the information provided in the text, and the research suggests that this process of selecting passages, and making inferences and hypotheses based on information described in the passage, fosters a student's use of facts and evidence to support a claim in their own writing (Kletzien, 2009). Paraphrasing, or putting things into one's own words, is also a foundational skill that links reading (receptive skill) and writing (productive skill), as it involves restating given ideas in different words. Students can paraphrase one sentence, paragraph, or multi-paragraph text, which enables them to develop a broader ability to restate and summarize what they have read (Kissner, 2006). Research has demonstrated that paraphrasing and retelling are beneficial for students' learning,

because being able to tell a story clearly in oral or written form helps them process and internalize what took place so as to come to a clearer understanding of what they have read (Gambrell, Pfeiffer, and Wilson, 1985). Paraphrasing is an important strategy to teach in literacy instruction as it engages students to make connections between text and their prior knowledge (Kintsch, 1998), and it also enables students to discern facts and evidence from what may otherwise be opinions and interpretations in the material they have  read.

Paraphrasing is an important skill that requires students to make connections between what they read and they will need this key skill to summarize or synthesize the large amounts of information that they will face in college and in many jobs today. The ability to distinguish facts from opinions is a fundamental task that all readers need when faced with new information.

**Structure**
The CA CCSS focus on developing a student's academic literacy by building the skills needed to extract meaning from complex narrative texts and content-area texts (Kosanovich, Reed, and Miller, 2010). Academic literacy is more than simply being able to read; it involves making inferences from text, differentiating facts from inferences, making links between texts, and summarizing key information from texts (Torgesen et al., 2007). A successful reader is one who can easily navigate narrative texts as well as content-area texts with deep understanding (Marchand-Martella, Martella, Modderman, Petersen, and Pan, 2013). Students in middle school need specific instruction in narrative text structure and content-area (or expository) text structure, even though most academic text for middle school grades is typically expository (Sáenz and Fuchs, 2002). Narrative texts generally describe events that take place over time and are related by theme or cause (Brewer, 1980). Research suggests that content delivered via narrative texts because they are likely familiar with the structure of narrative texts, and can then develop interest and background knowledge from them (Wolfe and Mienko, 2007).

Researchers have found that specific and systematic instruction on expository text structure facilitates greater reading comprehension (Pearson and Duke, 2002; RAND Reading Study Group, 2002; Sweet and Snow, 2003). Understanding how a text is organized also helps students recall information and build coherent models of a text (Dymock, 2005)—a skill that will be particularly useful as students carry out time-sensitive tasks that require reading and writing such as the CA CCSS assessments, SATs/ACTs, and research reports in college and beyond.

Teaching students to identify structural elements of a written argument, summarizing the argument, and critically analyzing the content of the argument has been shown to improve a student's ability to write effective and persuasive essays (Haria, MacArthur, and Santoro, 2010). Students who understand the basic structures in an expository text—description, sequence, cause and effect, etc.—consistently use their knowledge of top-level text structure in reading and recall tasks (Akhondi, Malayeri, and Samad, 2011; Meyer, Brandt, and Bluth, 1980). They are also typically able to recall much more information than peers who do not use top-level structure to guide their reading, and they are able to better discriminate information in a text with its overall meaning (Meyer et al., 1980).

**Setting and context**

Significant research has demonstrated that a reader's background knowledge facilitates comprehension and enhances learning (e.g., Block, Gambrell, and Pressley, 2002; McNamara and Kintsch, 1996). Research has also shown that comprehension can be aided by rewriting texts to make them more coherent, and that providing more background information for students allows them to readily grasp the meaning of the text (Beck, McKeown, Sinatra, and Loxterman, 1991; McNamara, Kintsch, Songer, and Kintsch, 1996). Close reading to build background knowledge and analyzing the details of passages are important because they are the basis for larger analysis and understanding of the overall text (Wheeler, 2014). Scholars of critical thinking note that engaging students in the process of close reading requires developing their thinking about reading and practicing the skills involved in close reading—such as reading with a purpose, considering the author's purpose, developing a mental map of knowledge, and understanding systems of thoughts (Paul and Elder, 2003).

Competent readers learn to read with specific goals, actively engage in dialogues with the writer, and seek to understand the writer's purpose. They look for information about contexts, interpretations, and assumptions being made by the writer or characters within a text, implications or consequences of events, and points of view conveyed in the text (Paul and Elder, 2003). According to Hillocks, an expert in writing instruction, the information that readers learn to examine closely likely can become evidence in an argument giving rise to a claim or a thesis statement. Close reading therefore often involves working through an argument—and close analysis of details in a text often requires interpretation and the ability to generate questions. Attempts to address these questions can then further become hypotheses or thesis statements (2010).

**Syntax, conventions, mechanics, usage**

A meta-analysis of studies (Graham and Perin, 2007) that involved explicit, systematic grammar instruction on parts of speech and sentence structure revealed a significant negative effect of this type of instruction on the quality of students' writing. Traditional approaches to teaching grammar, therefore, should not be the focus of instruction—rather, grammar should be taught in context, with the focus on concepts and functions of syntax (subject, verb, sentence, clause, and phrases) in literature or in a student's own writing (Weaver, 1996). Having students practice sentence combining when writing (i.e. involving practical application of grammar skills), for example, has been shown to be beneficial to improving the quality of a student's writing (Fearn and Farnan, 2005). Writing style and voice can be taught by helping students practice coordinating proper use of syntax and using structures especially associated with expository writing. Additionally, research suggests that mechanics and conventions can be effectively taught by helping students use punctuation not only for correctness but also for clarity and stylistic effectiveness (Weaver, 1996). Having students read a variety of good literature that is interesting and syntactically challenging will further promote their acquisition of syntactic structures and proper punctuation, as well as appropriate spelling and formatting.

# Curricula to prepare all students for college and careers

**Amplify ELA principles underlying student achievement and curriculum implementation**

To help students achieve high standards and to enable teachers to effectively implement a curriculum that addresses the skills outlined previously, Amplify has structured the ELA curriculum around seven core elements: engaging texts, authentic learning experiences, guided practice, expanding vocabulary, role of multimedia, teacher professional development and technical support, leveraging assessments and progress monitoring.

### Engaging texts

Scholars and experts who had led the development of Amplify ELA possess a deep understanding of the CA CCSS, and extensive experience implementing rigorous, systematic instructional approaches that are required to help students meet the standards. The process of producing these materials began with a careful selection of texts worthy of close reading. Amplify has worked with leading experts in literature, history, and science to understand these texts and to write text-dependent questions that will help students understand and appreciate them. These questions have been tested with both adult educators and students, refined or eliminated as needed, retested to establish clarity and usefulness, and finally incorporated into lesson plans that have then been tested in school-based pilots.
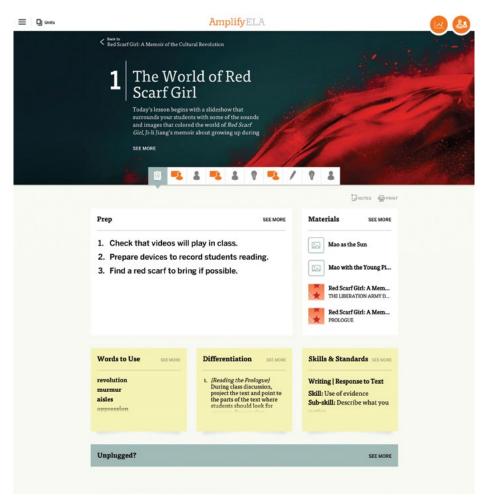
Amplify has a full-time literature coordinator who helps to create portfolios of a variety of fiction and non-fiction texts from which students can build their knowledge about the world. The literature coordinator is supported by an advisory board that includes professors of literature, researchers in English education and literacy, specialists in English Learner (EL) issues, and leaders in information technology, as well as representatives of organizations such as the Academy of American Poets and The literary magazine *Lapham's Quarterly*. The texts have been sequenced by Amplify curriculum specialists so that students can use the vocabulary knowledge and syntactical understanding they gain from studying a particular text and apply them to materials that appear later in the curriculum.

Research has demonstrated the importance of time spent studying students' growth in reading achievement (e.g., Anderson, Wilson, and Fielding, 1988; Taylor, Frye, and Maruyama, 1990), and reading amount is highly correlated with reading motivation (Guthrie, Wigfield, Metsala and Cox, 1999). One effective approach to motivate students to read is to provide them with texts that are interesting, meaningful, and accessible to them—for instance, texts that are neither too difficult nor too easy (Baumann and Kame'enui, 2004). The texts featured in Amplify ELA have been measured with a quantative score in the form of a Lexile and sequenced by the degree of text complexity within each grade level so that students practice their close reading skills with increasingly complex texts.

Researchers have also shown that primary sources (e.g., original documents such as letters, diaries, speeches, and images) enable students to apply more of a first hand experience critical for deep understanding of texts (Morgan and Rasinski, 2012). The Amplify ELA curriculum includes texts concerning topics that adolescents can readily relate to, such as Roald Dahl's mischievous boyhood anecdotes and experiences at his boarding school in *Boy: Tales of Childhood*, Laurence Steinberg's article "Demystifying the Adolescent Brain," and Shakespeare's *Romeo and Juliet*, a story of teenage lovers who are forbidden to be together because of a

bitter grudge between their families. Other texts such as Edgar Allen Poe's "The Cask of Amontillado" and "The Tell-Tale Heart" involve mystery, murders, and intrigue. Challenging primary source documents such as The Declaration of Independence, and Sojourner Truth's speech, "Ain't I A Woman?" further encourage students to grapple with issues of historical, political, and cultural importance.

Research collections also can engage students with various primary sources about specific topics that enable them to be more connected to individuals, events, or time periods, such as when reading about space exploration and the competition between the U.S. and the Soviet Union from 1942-1975, or the sinking of the *RMS Titanic* in the North Atlantic Ocean on April 15, 1912, after colliding with an iceberg during her maiden voyage from England to New York. Amplify curriculum writers have paraphrased primary sources written in period-specific vernacular into versions that can be more accessible to students today. These collections serve as extension materials for students who want to learn more about a particular topic or need additional support in building background knowledge.

**Authentic learning experiences**

Student learning and engagement is enhanced when educational activities involve participation in interactive, collaborative, project-based tasks in everyday, meaningful contexts (Renzuelli, Gentry, and Reis, 2004). In ELA classrooms, one instructional approach to providing an authentic learning experience for students is to have them role-play characters in fiction or drama, or participate in performances such as Readers' Theatre (Poitras, Stimec, and Hill, 2013). For example, one activity during a lesson on *Romeo and Juliet* involves students acting out specific scenes of the play. In groups, one student serves as the director while the others role-play as various actors in a specific scene or act, and the group decides collectively how particular events will be enacted. In another activity called Four Corners, the class participates in a debate. Each student is given one of four arguments made by Romeo to win over Juliet. Each group must convince members of other groups, and win them over to their corner of the classroom—the goal being to win over as many students as possible with a compelling argument.

Several units are accompanied by Quests, which are immersive, game-like experiences that integrate role-playing, reading and writing, and problem solving. A Quest that complements the unit on poetry and short stories is Who Killed Edgar Allen Poe?—a murder mystery students must solve by role-playing as various figures in the writer's life (e.g. Mark Twain, Rufus Griswold) or characters from his works (e.g., Lenore, Annabel Lee, the Raven, the murder ern "The Tell-Tale Heart"). Students play together in teams of two or three, each team representing one of nine characters, and each character must investigate the crime scene, interview other characters, and interpret clues in order to solve the mystery. They must write who they think is the murderer and explain why using evidence they collected. The Quest is even loosely based on Poe's real-life death, which still remains a mystery. During this Quest, students practice their close reading and writing skills to explore characters in Poe's world, paying close attention to setting and character and by analyzing new pieces of non-fiction writing (Twain's and Griswold's reviews of Poe's work). They relate personally to the materials by assuming characters' attributes, vocabulary, and costumes or props. The final challenge is for students to draft and read aloud an accusation, naming the murderer of Poe by using clues discovered throughout the Quest.

Another Quest, Perception Academy, complements its Brain Science unit with informational text on neuroscience. Students experience a school day as if they have one of the perception disorders in Oliver Sacks's book *The Man Who Mistook His Wife for a Hat*. At the start of the day, students recognize that something is amiss, but do not understand what it is—i.e., depending on each student's disorder, his or her view of a breakfast plate differs markedly. They then learn about and explore what is happening to them by discovering the particular disorder that afflicts them. By working with other students who are experiencing different disorders, students practice cooperative problem-solving skills while deepening their understanding of brain disorders. During the Quest, students also watch videos that present testimonies from real people who experience any of the disorders that they are studying. These videos serve to create empathy for those who have the disorders described in Sacks's book. Students then engage in a drama of their own creation, in which they write out a scene of dialogue as one of the afflicted characters, to try to accomplish a complex task by working together.

Such interaction and collaboration serve to foster an encouraging instructional climate, one in which all students learn to participate in a meaningful way. A community of learners is created as students work together to solve a particular problem (e.g., mystery, treasure hunt)—but, moreover, by having students work in teams is an effective way to encourage and sustain student effort and persistence (Boss, Johanson, Arnold, Parker, and Nguyen, 2011; Van Garderend, Hanuscin, and Lee, 2012).

**Guided practice**

In order to become a literate person in the 21st century, students need to spend time engaging with high-quality literary and informational texts that build knowledge, diversify experiences, and expand their worldviews. Students need ample opportunity to practice collecting data or evidence to critically analyze and reflect on what they have read, so as to use that information to support an argument in speech or writing. Their development of such skills is initially guided by the teacher, and then further reinforced through social interactions that involve collaborations with their peers and by independent practice (Vygotsky, 1962, 1978).

Each ELA lesson includes a segment of time (18-30 minutes) dedicated to practicing a particular skill that has been introduced at the beginning of the class period through targeted instruction. For example, non-fiction, information-rich texts of the type on which the CA CCSS are focused are often difficult for students to read and understand. Therefore, tackling such texts should be taught explicitly with substantial scaffolding and guided practice. As such, Amplify curriculum writers have incorporated these kinds of reading activities into each lesson—activities that are designed to help students comprehend and enjoy texts so they may write about them, activities that will develop reading habits to further increase their comprehension of non-fiction and informational text, and activities that will enable learning new vocabulary to build up their ability to handle more complex texts.

Teachers lead students in four types of activities. In Writer's Eye, students look for specific types of words in order to develop a sense of which words writers choose and why, as well as the effects they have on the reader. In Main Idea, students sort details from the text into groups to help them separate specific details from broader ideas; they practice finding the main idea that contains all or most of the details in the text. In Words from Context, students use key words from a text to learn how to develop absorbing definitions of unfamiliar words. And lastly, in Staying in Bounds, students learn to identify from an excerpt of text what they may already know but can further infer from it. In this section, they are required to stay within the boundaries of the excerpt and not impose any personal or external knowledge onto the subject. Teachers will help guide the whole class through these four activities, then have students practice in groups or pairs—with the goal of having each student subsequently engage in these activities independently when they are reading texts on their own.

Amplify ELA emphasizes the importance of establishing a writing routine by having students write regularly, learning to share and respond to criticism, and by receiving targeted feedback on how to revise and improve upon specific skills. A primary goal that teachers establish at the beginning of the school year is to have all students write a page on one topic, for about 12 minutes. This brief but frequent writing time is intensive and purposeful. Students practice writing on demand, attending to the writing skill being taught. They learn to

maximize their ability to concentrate on writing, proving to themselves that they are capable of filling a page with words while writing long enough to delve in details on a given topic. Another example of guided practice is implemented through the Grammar Engine, a program that provides individualized grammar instruction. This program uses a diagnostic test to identify concepts which an individual student may have difficulty with, then meets the student at his or her level so as to provide targeted grammar instruction and exercises specifically tailored to the student's needs.

**Expanding vocabulary**

Vocabulary plays the most important role in text complexity and determines how likely students are to understand a text (Graves and Fink, 2007). As such, Amplify ELA places a substantial emphasis on vocabulary instruction, working with a vocabulary expert whose main focus is determining which words in a text are most essential to achieving understanding of that text. The expert then prioritizes these words in accordance with a student's current level of vocabulary. These words are brought to the student's attention as they encounter them in the text, contextualized definitions are provided for each word, then students are provided with exercises on how to practice figuring out the meaning of the words from the context. This systematic approach to teaching vocabulary aims to provide students with a continual supply of new words to broaden their vocabulary.

Researchers have identified several key components of effective vocabulary instruction. Among the most significant components are: frequent, varied, and extensive language experiences (i.e., through listening, speaking, reading, writing); rich, deep, extended instruction that involves both definitional and contextual information; and specific instruction on word-learning strategies such as using context, word parts, and cognates (Graves, 2006; Graves and Fink, 2007). Amplify's approach to vocabulary instruction encompasses all of these components. Students start each lesson with a five-minute self-directed activity, such as with auto-scored multiple-choice questions designed to test skills on how to learn new words in context. Each vocabulary word introduced is accompanied by two contextual clues (texts that are no longer than a few sentences). The curriculum platform that students use has a feature called the Reveal Tool, which allows students to tap on a Tier 2 word to reveal its meaning; definitions in the tool are contextual, so as to not overwhelm the student with a more detailed dictionary definition. Students encounter the target words in a wide variety of narrative and literary contexts—such as from newspaper articles, movie or restaurant reviews, advertisements, and so on.

During lessons, teachers also demonstrate how students can infer word meaning through context and how writers use words to convey nuanced meaning. For example, a lesson focused on figuring out words in context takes words from *Phineas Gage* (by John Fleischman) to help students understand the meanings intended by the author. Students receive targeted instruction to understand that the meaning of words can change depending on the given context, and the ways in which they are used in a given text. The teacher demonstrates by use of air quotes that the author may be calling the reader's attention to the fact that some things are merely meant by implication or that an author may even be using a word sarcastically. An example from the text involves the word "dresses" in a medical context—such as when, in *Phineas Gage*, "Dr. Harlow does what he can … [he] 'dresses' the wound." While "dresses" typically means to put on clothes, in this particular context Dr. Harlow is not putting on clothes but rather taking care of and applying bandages to Phineas' wound. Even the author, in this case, has put quotation marks around the word "dresses," and the teacher here would draw the students' attention to this precise action by their use of air quotes when reciting or referring to the text.

### Role of multimedia

Many studies have shown that learning is enhanced when students receive information in more than one mode, such as through images and words (Mayer, 1997; Schnotz and Kulhavy, 1994). Researchers claiming the effectiveness of multimedia learning have combined dual coding theory (Sadoski and Paivio, 2001), cognitive load theory (Sweller, Van Merrienboer, and Paas, 1998) and constructivist learning theory (Novak, 1998; Vygotsky, 1978). According to dual coding theory, learners process verbal and nonverbal stimuli in different parts of the brain. Cognitive load theory claims that humans can process only a limited amount of information in each sensory channel at a given time (Mayer, 2001), and constructivist learning theory indicates that learning occurs when students actively select pertinent information, organize it into coherent representations, and then incorporate it with other bits of knowledge (Mayer and Moreno, 2002). Cognitive overload occurs when students encounter too many elements to be processed simultaneously in their working visual or verbal processing systems. Therefore, while presenting information through multiple modes can help learners more than information provided in a single mode, extraneous words and sounds may hinder a learner's performance (Mayer and Moreno, 2002; Tabbers, Martens, and Merrienboer, 2004).
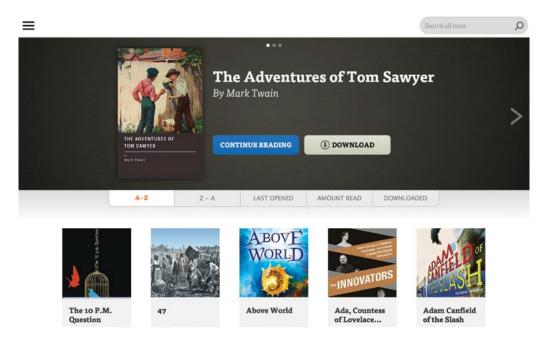
Materials supplied in several presentation modes can also facilitate learning and retention of information, particularly for lower-achieving students (Chen and Fu, 2003), as visualizations will maintain learner's attention more concretely through external representations of information (Shah and Freedman, 2003). A key benefit of multimodal learning environments is that it allows students to experience learning in ways that are most suited for them, while offering them the opportunity to learn in other ways that challenge them to integrate visual, aural, and textual information (Picciano, 2009). Students are also likely to become more self-directed and efficacious when they can select from the various elements offered in their learning environments that better suits their modal preference, learning styles, and cognitive strengths (Doolittle, McNeill, Terry and Scheer, 2005; Sankley, Birch, and Gardiner, 2010).

Prime examples of multimodal learning environments can be found in Amplify's Quests, which are discussed later in this section.

## Features across middle school grades

In addition to the core units, the curriculum features several components designed to be used flexibly across grades and classrooms: The Amplify Library, Research Collections, Vocabulary Program, and Grammar Program.

- The Amplify Library currently holds more than 600 contemporary and classic texts, including a mix of public (Project Gutenberg) and licensed works. More titles will be added as they are licensed and adapted to our system, and it also supports titles relevant to ELA games products.
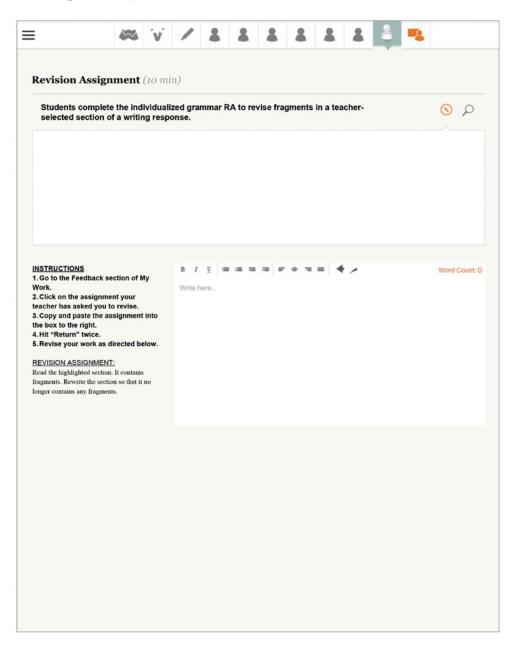


- The Research Collections (accessible through the Library) are specifically designed to teach information literacy skills. The Collections will be of high interest to middle school students, comprising topics such as the Space Race, the California Gold Rush, New York City in the 1920s, the history of chocolate, and the Titanic. Each collection includes 10 texts and 10 images with close-reading questions, two video clips, an audio archive, a timeline, and author and character biographies. The teacher's guide includes instructions on how to use reliable research techniques for print, Internet, and multimedia sources, as well as ideas for engaging students in debates, seminars, oral presentations, and independent writing tasks.

- The vocabulary program is specific to each unit and lesson. In nearly all lessons, students spend the first five minutes working on multiple-choice vocabulary activities based on challenging words selected from the unit texts. These activities increase the number of times students are exposed to a particular word used in context, and short narrative introductions to the words are provided to encourage students to practice the skill of learning words through context. Each narrative includes at least two contextual clues for determining the meaning of the target word. Additionally, the Reveal Tool for all core texts enables students to "reveal" short, in-context definitions of words as they read. The activities also include figurative language, to help students become familiar with relationships between words and the nuances of word meanings. Over the course of a school year, students work closely with more than 500 words through some 6,000 vocabulary activities. Moreover, teachers can reassign students to different vocabulary streams as they monitor a student's progress.

- Grammar instruction in Amplify ELA focuses on ensuring that students master the conventions of written English as set forth in the language strand of the CA CCSS. In each of the six units per grade, there are two lessons devoted to technical skills. Teachers may use a guidebook to incorporate technical grammar exercises into other lessons or to target activities to individual students or small groups. Once teachers have identified a grammar weakness, they can select and teach an appropriate mini-lesson for that skill then follow their lesson with practice and revision assignments. Amplify also has designed games that focus on grammar, syntax, and other language skills (e.g., Sentence and Sensibility, Mukashi Mukashi, Venture and Page Invaders).

The curriculum incorporates Flex Days, which teachers may use to review or extend a lesson, or further enhance the Amplify program with supports for particular students or groups.

> The principle underlying the vocabulary program—the use of contextual information to figure out the meanings of target words—is also a skill required for CA CCSS assessments, and in many situations in which we must process large amounts of information to achieve comprehension by making predictions or hypotheses. Being able to use the conventions of the English language is critical for effective communication and for lending credibility to one's oral and written expressions, as incorrect usage unnecessarily distracts the audiences' focus from the main message.

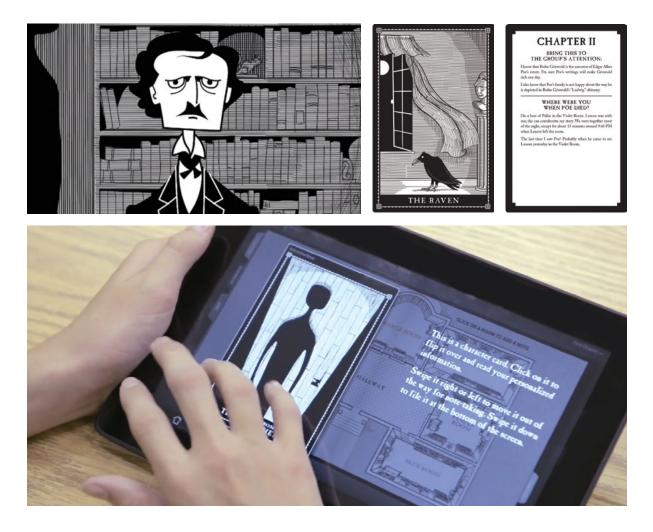**Quests: fun, open-ended, immersive learning experiences**

Quests are multi-day immersive team projects within units that inspire students to take charge of their own learning. They provide the ability to navigate diverse sources, assess their value and relevance, then synthesize and integrate the information to build a deeper understanding of various topics. These skills are critical to the expectations a student will encounter in post-secondary education and the work force.

For example, after completing the Character and Conflict unit, students can immerse themselves in Chicago in Black, White and Blues, an interactive experience exploring the lives of the characters from Lorraine Hansberry's play *A Raisin in the Sun*. Students discover images of Chicago in the 1940s-60s while exploring the world through the eyes of various characters in the play.

Complementing the unit on informational text is the Brain Science Perception Academy Quest, a series of linked activities that focus on brain disorders and how those affect what we perceive along with how we respond to our surroundings. Students can experience class periods of a school day as though they have one of the perception disorders detailed in Oliver Sacks's book, *The Man Who Mistook His Wife for a Hat.* The Quest builds on the work that students have been doing in the unit, and helps them to better understand a challenging, non-fiction text while encouraging them to continue reading in the sciences on their own.

Following the unit on poetry and short stories, Poetry & Poe, students can participate in a murder mystery Quest: Who Killed Edgar Allen Poe? Each student plays the role of one of the characters from Poe's works. Students interview each other in order to figure out the murderer, while exploring the world of Poe's poetry and short stories while applying critical reading and writing skills.

The Declare Yourself! Quest, which accompanies the unit on history and culture, Liberty & Equality, offers an opportunity to incorporate drama and fun into the study of the Declaration of Independence. Students address the same question that was put forth before the Second Continental Congress: Should we sign this declaration or not? They work and debate in teams, trying to win over opponents using evidence from primary source documents.

## Professional development for teachers and technical support

Professional development for teachers is an essential component in Amplify's approach to instruction. Research indicates that high-quality professional development is a key mechanism through which student achievement and classroom learning are improved upon by their instructors (Darling-Hammond, and McLaughlin, 1995; Darling-Hammond, 1998; Guskey, 2000). In order to implement the curriculum effectively, teachers and school leaders need ample opportunities to practice these materials and environments so as to best integrate their practice (Garet, Porter, Desimone, Birman, and Yoon, 2001).

Amplify has years of experience in supporting complex, sophisticated implementation of technology-based programs in districts across the US, and these resources will be provided to help schools utilize our digital curriculum programs. We will tailor a professional development program to address the goals of a school, a district, and a state so as to enable teachers, instructional leaders, specialists, and coaches to gain a deeper understanding of the materials to benefit the curriculum programs. Participants will have the opportunity to immerse themselves in the program and be provided support materials. They will have the opportunity to work with the curriculum from the perspective of the student, as well as from the perspective of the teacher or professional developer. Such focused experience on content of the curriculum has substantial influence on student learning (Yoon, Duncan, Lee, Scarloss, and Shapley, 2007), as teachers themselves learn to see how

central ideas and objectives of the curriculum become connected with various processes and strategies used to establish new knowledge in students (Borko, 2004).

Research on teacher professional development has demonstrated teachers must also have the motivation, belief, and skills to apply what they know from classroom teaching. They must be supported by ongoing collaboration with the schools and follow-up support with experts throughout the school year (Borko, 2004; Yoon et al., 2007). Amplify designs ongoing professional development sessions, beginning with the initial training and support for district and school staff in classroom management, working with the CA CCSS, using our digital curriculum products, and implementing best practices for technology in the classroom. Onsite visits will be conducted as requested to provide implementation support, modeling, and feedback to teachers through classroom observations and/or grade-level meetings regarding the fidelity to the curriculum. The format of the professional development session is guided by the participant's experience and training, and can take place onsite in the school district, in Amplify's offices (Brooklyn, Dallas, Atlanta, or Washington, D.C.), through web conferences, or through school-based customized consultations. Over the course of the school year, teachers will have opportunities to practice skills that were introduced during the initial training sessions, be able to work through implementation challenges, and collectively review and discuss student work in order to understand what it looks like when a student has mastered the standards to refine ways of working with students who may be experiencing challenges with particular elements of the curriculum. Teachers will learn by sharing experiences with each other (Lave and Langer, 1991), speculating about what the student is working on, discussing possibilities for improvement, and exploring ideas about ways to further support the student (Hughes, Parker-Katz, and Balasubramanian, 2013). They will learn to develop a shared understanding of the standards of the curriculum, language for describing what they see in student work, and how to address each student's particular learning needs.

In addition, Amplify ELA includes embedded support materials such as in-class prompts, videos, and forums. Tips in each activity about what to look for in struggling students and how to respond, as well as real-time access to student responses, automatic submission and scoring of activities and reporting are also integrated with back-up materials for when technical issues arise. Moreover, Amplify's technical services team will ensure that school districts have appropriate devices, wireless infrastructure and bandwidth to support the curriculum.

## Leveraging assessments and progress monitoring

In alignment with the types of assessments required by the new standards and new assessments, students frequently practice writing in class for 15 minutes, and teachers regularly score the writing sample and use the results of these formative assessments to modify individualize instruction as needed.

Software tools and rubrics for writing enable teachers to provide students with written feedback and also measure each student's progress against the CA CCSS. The information gleaned through these formative assessments helps teachers follow up with alternative or supplemental instruction to accommodate a student's individual learning needs and styles as well (Sternberg, 1994). This provides multiple chances for students to demonstrate new levels of competence and understanding. These formative assessments there in provide information about what teachers have taught well, and what they need to work on (Guskey, 2003). But by reviewing students' performance on specific tasks, teachers can reflect on the criterion, skills, and concepts they aimed to emphasize through their instruction, as well as the effectiveness of particular approaches to helping students learn (Guskey, 2003).

The benefits of frequent, ongoing formative assessments are widely recognized in writing instruction (Graham, Hebert, and Harris, 2011). For instance, teachers know that students rarely write well on first attempts, and that writing instruction involves guiding students through multiple opportunities to receive feedback that they can use to then revise and improve their writing. Research has shown that various forms of feedback, such as a teacher's comments about student progress in specific writing strategies (MacArthur, Schwartz, and Graham, 1991; Schunk and Swartz, 1993) or reactions from peers about particular aspects of writing (Boscolo and Ascorti, 2004; Couzijn, 1999) all have significant positive impact on a student's ability to express their thoughts through writing. Additionally, having students conduct assessments of their own work has been found to help them take greater responsibility for their own learning (James, 1990). When combined with performance goals, self-assessments increase a student's persistence, self-efficacy, and achievement (Schunk, 1996). But, students first must understand the criteria and goals they are trying to attain, how to situate themselves in relation to those goals, and then proceed to internalize learning that changes their understanding (Black and Wiliam, 1998; Sadler, 1989).

Using Amplify ELA, teachers also have a digital tool that provides them with reports on a student's work and progress. The reporting system maintains records of homework completion, reading comprehension, and writing productivity. Teachers are able to take advantage of in-class writing time to provide quick, individualized, on-the-spot verbal feedback, and students are then motivated by affirmative feedback about what they are doing well. Revision assignments delivered by the teacher both in the platform and in whole class instruction, will encourage them to experiment with new skills or vocabulary. These various types of low-stakes assessments provide teachers with student performance data on a regular basis to determine the effectiveness of their teaching, make decisions about how to improve instruction and further encourage students to become more aware of their own performance (Safer and Fleischman, 2005). Teacher comments on student work are particularly beneficial for English Learners and struggling students, as oral and written feedback provided daily can catch and address confusion early on to pro actively build a student's confidence and efficacy level.

## Summary

Preparing students to meet the CA CCSS and to be fully equipped with the skills and knowledge needed for success in their college and careers is a challenging task. Amplify aims to support schools in this endeavor by providing an engaging, rigorous curriculum with teaching tools and professional development that empowers and supports teachers in the classroom. The middle school ELA program comprises a full year of CA CCSS aligned lessons with rich and original content for students across all grade levels. The lessons embody the key principles underlying student achievement and effective teaching: engaging eexts, authentic learning experience, guided practice, expanding vocabulary, role of multimedia, teacher professional development and technical support, and leveraging assessments and progress monitoring.

The curriculum includes a library of documents, fiction, literary non-fiction texts, multimedia content, and immersive games that offer authentic opportunities to enhance a student's engagement, effort, and persistence in their own learning experience. The variety of activities available through multiple media and learning modalities provide students with a variety of options for guided practice as well as exercises for expanding academic vocabulary. Furthermore, teaching guides, dashboards, and classroom tools help to facilitate personalized feedback and build upon a teacher's skills to better integrate all the technical tools and digital content available in the classroom. Embedded formative assessments and real-time analytics offer critical information about individual students helpful in guiding instructional decisions, while ongoing professional development and technical support for teachers also help to enable instructors how to most successfully migrate to a fully digital and adaptive classroom.

# Amplify ELD: California Edition

The Amplify ELD curriculum has been developed based on the same philosophy and research base as our ELA curriculum. In addition to this foundation, our approach to serving the needs of all English Learners has been informed by the work of leading researchers in the field, including:

Baker, S., Lesaux, N., Jayanthi, M., Dimino, J., Proctor, C.P., Morris, J., Gersten, R., Haymond, K., Geva, E., Kieffer, M.J., Linan-Thompson, S. & Newman-Gonchar, R. (2014). *Teaching academic content and literacy to English learners in elementary and middle school* (NCEE 2014-4012). National Center for Education Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Biancarosa, G. & Snow, C. E. (2006). *Reading next—A vision for action and research in middle and high school literacy:* A report from the Carnegie Corporation of New York (2nd ed). Washington, DC: Alliance for Excellence Education.

Carlo, M. S., August, D., McLaughlin, B., Snow, C. E., Dressler, C., Lippman, D. N., Lively, T. J., & White, C. E. (2004). Closing the gap: Addressing the vocabulary needs of English-language learners in bilingual and mainstream classrooms. *Reading Research Quarterly*, 39, 188-215.

Francis, D., Rivera, M., Lesaux, N., Kieffer, M. & Rivera, H. (2006) *Recommendations on reading instruction and intervention for ELLs. Practical guidelines for the education of English language learners: Research based recommendations for instruction and academic interventions.*

Gibbons, P. (2009). *English learners, academic literacy, and thinking: Learning in the challenge zone*. Portsmouth, NH: Heinemann

Hakuta, K. (2011). Educating language minority students and affirming their equal rights research and practical perspectives. *Educational Researcher* 40.4, 163-174.

Mariani, L. (1997). Teacher support and teacher challenge in promoting learner autonomy. *Perspectives, a Journal of TESOL.* Italy. XXIII(2).

Schleppegrell, M.J. (2004). *The language of schooling: a functional linguistics perspective*. Mahwah, NJ: Erlbaum.

Van Lier, L. & Walqui, A. (2012). *Language in the common core state standards*. Paper presented at the Understanding Language Conference, Stanford, CA.

Wong-Fillmore, L. & Snow, C. (2000). *What teachers need to know about language*. Washington, DC: ERIC Clearinghouse on Languages and Linguistics.

Wong-Fillmore, L., & Fillmore, C.J. (2012). *What does text complexity mean for English learners and language minority students?.* Invited paper for the Understanding Language Initiative, Stanford University.

# Amplify ELA games

This section describes the research behind the design and development of the World of Lexica, Amplify's ELA digital game world for middle school students. Lexica is a game ecosystem consisting of embedded, skill based literacy games and a library with more than 600 texts. It includes enough hours of play to span the entire school year. Users engage with Lexica by browsing and reading books, meeting characters from literature, and creating their own stories. Lexica focuses on the cognitive and non-cognitive foundational skills that research shows make better readers and writers. The Lexica game world aims for students to read more and practice syntax, vocabulary, morphology, and spelling skills. It seeks to engage and encourage students to persist in these literacy activities. The research that supports these design principles is based on years of study by psychologists and literacy specialists and aligns with the CA CCSS for ELA/Literacy that emphasize more reading and writing, greater rigor in those experiences, and more time on tasks with ELA skills.

**Engagement and persistence**

Lexica is built to encourage and enable students to read books over a prolonged period, both in and out of school. As such, it must be sufficiently engaging for students to voluntarily play and persist. The research on how to engage and encourage persistence is essential to the design of games that students actually want to play. In "Self Determination Theory," psychologists Deci and Ryan identify activities that satisfy individual needs for autonomy, competence and connectedness (1985). By meeting these needs, these activities promote persistent engagement. When engaged in a favorite activity, students may enter a state of flow, the unselfconscious involvement in an activity during which nothing else seems to matter and a sense of time is lost (Csikszentmilhalyi, 1997). Research shows that teenagers experience flow 44 percent of the time they are involved in sports or games and that people experience more flow when they are reading books than when they are watching television (Csikszentmihalyi, 1997). Games contribute to a state of flow by encouraging the use of a set of skills to overcome a challenge. Players then move onto learning new skills and facing new challenges. Combining conditions that contribute to flow and self-determination promotes persistence, a critical skill for learning.

Important to understanding why games that foster persistence contribute to learning is the work of psychologists studying skills associated with intelligence. The studies reveal that there is a distinction between "being smart" and "getting smart" (Resnick 1999) and that intelligence is not fixed. Many people believe that one is smart or not and that performance simply reflects intelligence. In fact, intelligence is something that grows with time and effort. In her book *Mindset: The New Psychology of Success,* Carol Dweck, a Stanford psychologist, explains how people with a growth mindset develop their basic talents and abilities through dedication and hard work (2006). Dweck's research examines how teachers and other facilitators of learning can focus on improving skills and abilities rather than examining if an individual is "smart." Dweck's research findings show that the key to improving abilities is persistence. The Lexica game world is designed to make competency with words and reading the vehicle of success and proficiency the reward of persistence.

**More reading makes better readers**

"Practice makes perfect" is a truism preached by parents, coaches, and teachers. Elite athletes and musicians demonstrate its value in creating top performers (Ericsson and Lehmann 1996). In fields as diverse as medicine, writing, and computer software design, researchers repeatedly document the necessity of deliberate practice for mastery and excellence (Norman et al., 2006; Kellogg, 2006; Sonnentag, Niessen and Volmer, 2006).

Research on reading also indicates that practice is key to reading success. Defined here as the ability to understand written text, reading comprehension is dependent on other skills such as depth of vocabulary (Kuhn and Stahl, 2003; Biemiller, 2009) and fluency (the ability to automatically identify words, accurate decoding of words, and rapid reading)—a skill that, even in high school, can limit reading comprehension (Rasinski et al., 2005). In an effort to gauge growth in student reading ability, researchers use these factors to measure reading success. Over and over, they document that more reading leads to better reading comprehension, increased vocabulary, and greater fluency (Anderson, Wilson and Fielding, 1988; Therrien, 2004; Alber-Morgan et al., 2007; O'Connor, White and Swanson 2007; Shany and Biemiller 2010). In fact, for decades educators have been advocating for more time reading to achieve reading success (Allington, 1977; Levine, 1984; Moser and Morrison, 1998; Cunningham, 2005). Students who read a wide range of texts increase reading comprehension, fluency and vocabulary (O'Connor et al., 2007; Shany and Biemiller, 2010; Ari, 2009; Kuhn, 2005; Homan et al., 1993). Furthermore, simply making a wide range of texts easily available to students during school time is an effective way to improve reading comprehension (Guthrie and Humenick, 2004). Taken together with research that documents a strong relationship between the amount of time students read outside of school and growth in reading ability over time (Anderson et al., 1988) and research that shows improved reading achievement from home summer reading programs (Kim and Quinn, 2013), the value in developing an approach to motivate students to read on their own time is clear.

Lexica is part of Amplify's approach for motivating kids to read more both in school and out. Situated in a virtual library with hundreds of age-appropriate titles, Lexica aims to drive players to browse and read narrative and informational texts. It seeks to engage players through stories and by providing opportunities to interact with characters from great works of literature. Players are encouraged to continue the story by reading the source books in the virtual library. Specific texts are linked directly to the game, making it easy for players to jump immediately into reading after a play session. Players also create content to shape the Lexica world, further encouraging deep engagement with texts. A major goal of Lexica is to make reading fun and relevant in order for kids to read more. More reading should lead to better readers with greater reading comprehension and vocabulary skills.

**Skill building through a virtual world**

Reading texts of age-appropriate complexity is central to the CA CCSS for ELA/Literacy. In order to engage students in challenging reading and build fluency, it is essential to broaden vocabulary, understand how words are constructed, and study syntax. The following sections explore the research behind developing ELA games focused on these skills, because practice with these skills leads to greater reading comprehension and enhances the fluency necessary to prevent persistent reading comprehension problems (Hirsh, 2003; Liben and Liben, 2012). Most significant, practice with vocabulary in the context of reading combined with understanding sentence formation and word structure make better readers.

### Vocabulary, morphology, and spelling

Understanding the meaning of words is a necessity for becoming a good reader (Biemiller, 2009). Students with small vocabularies tend to avoid reading and, hence, in the long run remain poor readers (Cunningham and Stanovich, 1997; Storch and Whitehurst, 2002). Therefore, enhancing vocabulary is a requirement for reading success. Activities designed to promote this vocabulary acquisition have been shown to improve reading ability (Mezynski, 1983; Stahl and Fairbanks, 1986). To better understand the types of words students need to know when reading, words are classified into three categories: Tier 1 words are used in everyday spoken language that are also found in written text. Tier 2 words are commonly found in written text, but are not generally spoken. Tier 3 words are important for understanding specific informational content, but are not found in a broad range of texts (Beck, McKeown, and Kucan, 2013).

All of these word categories are important for reading comprehension, for if students do not understand any of these words, they will not be able to understand the reading passages that contain them (Hirsch, 1987). Yet, Tier 2 words are the most important targets for learning, since these are the words students are most likely to encounter and with which, simultaneously, they may be unfamiliar (Beck et al., 2013). Importantly, to truly learn these new words, students must experience them in context and multiple times (Stahl, 2005; Butler et al., 2010).

Lexica uses research-based strategies to support vocabulary development. For example, embedded in its word-meaning game, Tomes, are words identified as high-priority Tier 2 words. These words are unfamiliar to approximately 20 to 60 percent of sixth graders, but are also considered to be important to reading comprehension (Biemiller, 2009). Tomes also includes an additional set of more difficult words that are important for text comprehension in middle and high school (Biemiller, 2009). Meanings of these words are then explored multiple times in context, and importantly, students perform activities that require them to think about word meaning (Liben, 2005). These activities, taken together with morphology and spelling games, aim to build student understanding of words. This, in turn, should contribute to greater student reading comprehension.

Morphology refers to the study of the structure of words particularly the smallest units of meaning in words called "morphemes." Research shows that understanding the structure of words is a very powerful tool for learning vocabulary in the context of a text (Keiffer and Leseaux, 2007; Verhoeven and Perfetti, 2011). Understanding of morphology is correlated with rich vocabulary inventories, which can grow by increasing spelling awareness. Spelling is what allows students to see morpheme patterns, since the patterns are only apparent when words are properly spelled. Understanding these morpheme patterns allows students to build meaning from new words, a critical component to expanding their vocabulary (Prince, 2014).

In teaching about word morphology, the suggested instructional tasks are distinct components of explicit vocabulary instruction. Instruction should emphasize the relationships among words based on their shared roots, prefixes, or suffixes (Beck et al., 2013). This is referred to as "word consciousness" (Graves, 2006). Determining the meaning of words in context by examining their parts enhances comprehension.

Lexica and its suite of embedded games provide many opportunities for the development of vocabulary and spelling skills. For example, in the Tomes, users tap on unfamiliar words to learn their definitions in the context of the story. Spelling Stone invites students to create words by connecting their various parts, which contributes to vocabulary building, reading comprehension and accurate spelling. In W.E.L.D.E.R. Edu players

assisted by a game dictionary, build spelling and vocabulary skills by moving letters around a virtual game board. Morphology games like Ink Blott: Underground aim for students to recognize morphemes that aid in the development of new vocabulary.

**Grammar and syntax**

A meta-analysis of determinants of text complexity found that syntax, along with vocabulary, are the most important features in determining the difficulty of a complex text (Nelson et al., 2011). This finding is significant since both vocabulary and syntax skills are not regularly taught in routine reading instruction. Syntax refers to the arrangement of words in a sentence and the study of the rules that govern the formation of a proper sentence. It includes the study of forming phrases from words and organizing these phrases into grammatically correct sentences. Scott's 2009 study shows that sentence comprehension is pivotal to successful reading. Understanding what makes sentences complex, for example, the extent to which they contain more than one clause helps students make meaning of expository texts in content subjects. Informational sentences written by adults are on average longer and more complex than narrative sentences. Because the syntax of complex sentences poses challenges to reading comprehension, practice with sentence construction and deconstruction—simpler to complex and vice versa—is an important skill for both reading text and writing about it (Scott, 2009).

Researchers recognize the association between understanding syntax and reading comprehension, however, syntax-as-knowledge is hard to isolate from syntax-as -process (Scott, 2004). For this reason, there are many types of syntax exercises that challenge readers to explore the grammatical construction of simple and more complex sentences and/or the agreement of subject and verb in a sentence. The goal is to develop syntactic knowledge and awareness and no single type of syntax ability is shown to contribute to reading comprehension (Scott, 2009). It is a "both and" scenario that requires different sentence tasks to develop a wide range of syntactic abilities.

Doing these syntax exercises as isolated drills, devoid of a content context, is less useful than embedding the study of sentence structure into the study of the text (Scott, 2009). Teaching sentence construction skills contributes to better writing as it contributes to reading comprehension. *Writing to Read*, a Carnegie Corporation Study (Graham and Hebert, 2010), provides evidence that writing is a powerful vehicle for improving reading, specifically asking students to write about a text they are reading.

Lexica addresses syntax exercises in multiple ways, using the game world as the overarching context and embedding micro-games that address specific skills. Mukashi Mukashi is a syntax game in which players create their own stories by choosing words that syntactically and semantically fit together to make meaningful sentences. Page Invaders invites students to race against time to form more and more complex sentences before cute, but menacing "worms" invade the page. Sentence Sensibility encourages students to use a variety of complex sentence structures. Students are rewarded for correct grammar as they construct funny, sometimes silly sentences. These games have the potential to nurture the development of an intuitive sense of syntax, or syntax-as-process (Scott, 2009).

**Lexica**

Lexica's attention to reading, vocabulary, syntax, spelling, word morphology, and meaning in context aims to make better readers, ones that are capable of understanding both non-fiction and fictional texts, key competencies of the CA CCSS for ELA/Literacy. Importantly, Lexica is intended to extend learning both in and out of school. Built to engage, it promotes a state of flow by addressing students' needs for autonomy, competence, and connectedness. The goal is for the user to experience the joy of advancing through the game world, gaining greater status and mastery within the game. Hence, Lexica's game design seeks to make working hard on these skills inviting and intrinsically rewarding.

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