

HIGH LEVEL REQUIREMENTS

V1.0

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Revision History

Date	Version	Description	Author(s)
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Stakeholder Approval

I have reviewed the requirements for provided which are represented in this document. I give my approval to start implementation of these requirements. Any further requests will be reviewed through the standard change request procedure.

It is important to note that the HLR captures the customer's requirements for the program, but is not a commitment of delivery of same. Post-HLR, the project team will review the requirements against the budget, time, resources, and quality to determine what can be delivered and when.

Stakeholder	Role	Version	Date
	Senior Business Analyst	V0.3	Apr 20, 2012
	Content Architect	V0.3	Apr 20, 2012
	Senior Director Product Management	V0.3	Apr 20, 2012
	Product Manager	V0.3	Apr 20, 2012
	Senior Editor	V0.3	Apr 20, 2012
	Program Manager	V0.3	Apr 20, 2012
	Director Editorial	V0.3	Apr 20, 2012
	Program Manager	V0.3	Apr 20, 2012
	Senior Product Manager	V0.3	Apr 20, 2012
	Learning Design Lead	V0.3	Apr 20, 2012
	Studio Design Manager	V0.3	Apr 20, 2012
	Project Manager	V0.3	Apr 20, 2012
	Program Manager	V0.3	Apr 20, 2012
	Project Manager	V0.3	Apr 20, 2012
	Manager, Requirements Analysis	V0.3	Apr 20, 2012

Glossary of Terms

The following terms and initialisms may be used within this document and should be interpreted according to the definitions listed.

Term or Abbreviation	Definition	
Activity	A single game environment (for example, <i>Karloon's Balloons</i> in the current phonological awareness program is a game/activity).	
CCSS	Common Core State Standards	
Connections	The higher level of the two main programs that make up generally intended for grades 2 and 3.	
®	* provides a research based, comprehensive reading intervention program that helps improve reading proficiency, reading skills, and reading comprehension.	
Foundations	The lower level of the two main programs that make up generally intended for grades Pre-K, K, and 1.	
Game(s)	See Activity	
Level	There are three levels currently addressed by the product:	
	• Level 1 = Pre-K/K	
	• Level 2 = Grades 1–2	
	• Level 3 = Grade 3	
Phoneme	A basic element of a given language or dialect, from which words in that language or dialect are analyzed as being built up.	
Program	Foundations or Connections	
Task	A specific skill that is being tested.	
TG	Teacher's Guide	
тос	Table of Contents	
Trial	Each "trial" is a student's individual opportunity to answer a question or demonstrate a skill.	

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1 Project Summary

1.1 Project Background

1.1.1 Project Description

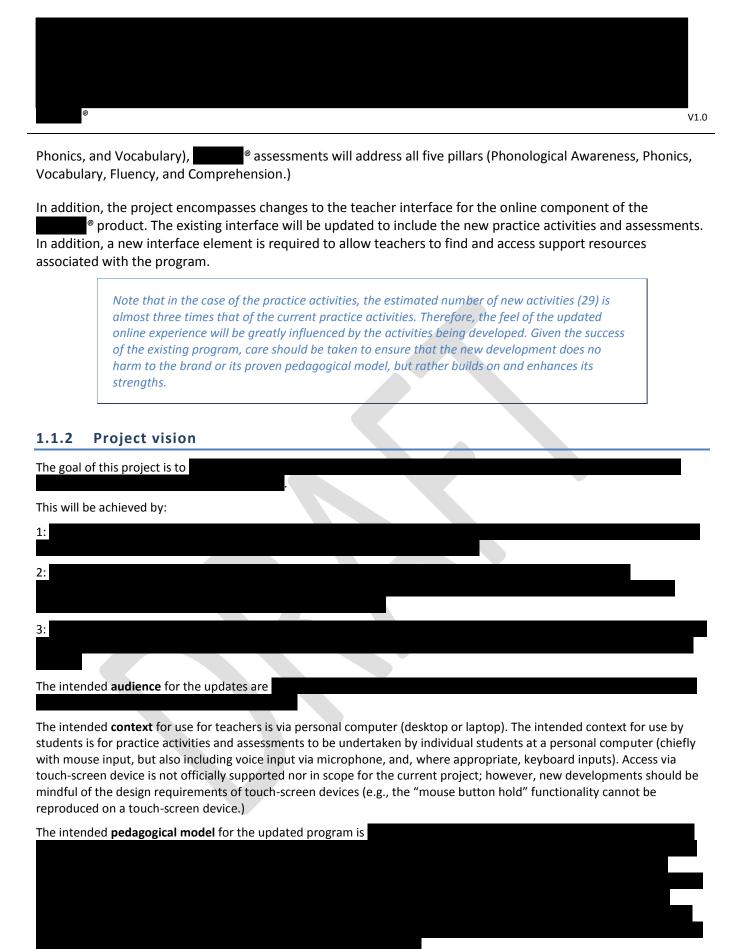
The program is a reading program for students from Kindergarten to 3rd grade (K-3). Instruction is based in lessons delivered by the teacher. A variety of resources, including the online practice activities and an array of supplemental materials, support the lesson plans. Practice activities are designed for mainly to be undertaken by individual students at a personal computer (chiefly with mouse input). Small group and whole-group instruction using the practice activities are minority use cases. Student access to practice activities via touch-screen device is not officially supported by the current product, though practice activities may be accessed by browsers on mobile devices capable of running Adobe Flash.

While the print lessons cover the five main "pillars" of reading (Phonological Awareness, Phonics, Vocabulary, Fluency and Reading Comprehension), the online practice activities currently only address Phonological Awareness. Assessment is currently not included in the program; however, the Assessment Roadmap feature allows results from a number of standardized diagnostic tests (for example, DIBELS) to be linked to lessons and activities, allowing teachers to plan instruction to address deficits in a student's learning identified in the diagnostic tests.

The existing Phonological Awareness activities include foundational skills (labeled *Foundations*) as well as conventionally identifiable phonological awareness skills (labeled *Connections*). The foundational skills provide practice with the underpinnings of the Phonological Awareness skills. The Connections activities build on the foundational skills and provide more fully realized phonological awareness skills practice. Phonological Awareness activities in are designed to build up a student's skills through repeated practice. Each activity takes the student through a series of increasingly complex tasks, and each task includes multiple levels. Students are presented ten trials for each play opportunity. The levels are adaptive in that a student's level will automatically be increased or decreased if s/he gets a predetermined number correct or incorrect in a row.

The current project envisions updating the program so that lessons will stay in the print books and will be revised to tie more closely to the new online practice activities. To mimic the Phonological Awareness component, new activities will be developed to provide practice for groups of related skills in the Phonics and Vocabulary TOCs.

New practice activities for Phonics and Vocabulary will be similar in look and feel to the Phonological Awareness activities. However, the format of the new activities will be adjusted to best fit the instructional best practices for Phonics and Vocabulary. Each activity is based on a simple animation with elements that are reused repeatedly throughout all tasks and levels, which makes each activity relatively easy and cost-effective to create. Each activity also has some visual stimuli that change from trial to trial, for example, in a task in which the student hears a word and then chooses the image that matches the word from among 9 images. It should be noted, however, that while



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1.2 Project Scope

1.2.1 In Scope

- Phonics practice activities
 - New animated activities
 - New trial items
- Vocabulary practice activities
 - New animated activities
 - o New trial items
- Placement recommendations
- Teacher Resources Center
- Assessment and Reporting updates
- Voice recording/storage/playback
- Text entry
- Search by level
- Search by standard
- Preview/assignment of assessments/pillars to individuals or managed groups
- Achievement against CCSS reporting
- New audio in the following languages:
 - o Spanish
 - o Vietnamese
 - o Hmong
 - Cantonese
 - o Korean
 - o Russian
 - o Haitian-Creole
 - o Arabic
 - o Polish
 - o English
 - o Mandarin
- Updated TG content
- Assessments for Phonological Awareness, Phonics, Vocabulary, Fluency, and Reading Comprehension
 - o Percentage of all items correct
 - o Percentage correct by pillar
 - Percentage correct by CCSS
 - o Skills assessed by pillar
- Correlation to CCSS
- User testing

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Prototyping

1.2.2 Out of Scope

- Online instruction for Phonics
- Online instruction for Vocabulary
- A full online curriculum for Phonics and Vocabulary
- Alt text for the Teacher Resource online images
- Automatic prescriptions
- Revision of classroom TE guides
- Updates to content, or migration to online, of the following CDs:
 - o Foundations Home CD
 - o Connections Home CD
 - o Foundations Clinic CD
 - o Connections Clinic CD
 - o Foundations Classroom CD
 - o Connections Classroom CD

1.3 Assumptions

- Source code can be decompiled correctly
- Editorial will perform a cold-read of all content which is being repurposed / reused
- All functionality and key features that are part of the existing the new online activities. This includes characteristics such as

1.4 Risks

- No source code is available for the current content. Development costs may increase if the code cannot be decompiled and modified. This could negatively impact updating the alignment of existing content to CCSS.
- Content and platform are more tightly integrated than first assumed. This will be investigated during the analysis phase.
- It is not yet known what content metadata is required.
- The current product uses older versions of technology which may require upgrade(s) to new version(s) to support requested functionality.
- Platform development will follow an agile approach, but content development will be standard waterfall development. Close communication will be required to remain in synch.



• If voice recognition is ruled out of scope, "the product" will not be able to provide feedback on the student's inputs. It would have to be provided by a teacher, and at that point, whether the practice is feasible to perform online would need to be re-assessed.



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1.5 Constraints

- Content topics that cannot be used:
 - o Witchcraft
 - o Religious symbols (Christian or otherwise)
 - o Satanism
 - o Guns, weapons, violence, bloodshed
 - Overt sexuality or sexual situations
 - o Drugs or drug use, including alcohol and smoking
 - o Offensive portrayals of minorities, men/women, the elderly, GLBT, etc.
 - o Dangerous behaviour kids are likely to emulate
 - o Junk food not tempered with some healthy choices
 - o Corporate logos or slogans
 - o Halloween

(Note: this list is not exhaustive and is supplemented by the Sensitive Issues chapter of the

2 Components

The following table lists the components included in this project.

Component Type	Component Name
Additional practice activities for the Phonics & Vocabulary Pillars	Pillar scope & sequence
	Animated practice activities
	Animated Trials
	Translated instructions
	Audio of Translated instructions
	Audio of English instructions
Educator Activity Selection Screen	Updated selection interface to incorporate new activities & tasks
	Correlations - new tasks
	Correlations - existing tasks
Assessment & Reporting	Animated assessment activities
	Test items
	Reading passages
	Audio of English instructions
	Translated instructions
	Audio of Translated instructions
	Links to new TG PDFs
	Instructions/User Manual

Component Type	Component Name
Teacher Resources Center	New Teacher Resources Center tab
	Teacher Guide pages
	Student pages
	Correlations - all pages
	TGs: PDFs linked through the Online Teacher Resource Center
Foundations Teacher's Guides (page count)	Foundations Vocab. Guide (116 pages)
	Foundations Phon. Awareness: (103 pages)
	Foundations Phonics Guide: (240 pages)
	Foundations Fluency Guide (no revisions)
	Foundations Comprehension (no revisions)
	Foundations Writing Guide (no revisions)
	Classroom Foundations Teacher's Guide (no revisions)
o Connections Teacher's Guides	Connections Vocab. Guide: (80 pages)
	Connections Phon. Awareness: (80 pages)
	Connections Phonics Guide: (186 pages)
	Connections Fluency Guide (no revisions)
	Connections Comprehension (no revisions)
	Connections Writing Guide (no revisions)
	Classroom Connections Teacher's Guide (no revisions)

3 High Level Requirements

The High Level requirements for , as requested by the stakeholders, are detailed in this section.

3.1 General

3.1.1 Functional Requirements

Identifier	Requirement	Notes
	Students shall be able to compare their own production of a phonetic sound to the corresponding phonetic sound modelled by the product.	 This would be for practice purposes. Recommended solution is to provide ability to record one's voice and hear replay.
	Students shall be able to obtain feedback after attempting to mimic a phonetic sound previously presented by the product.	 This would be for practice purposes. Recommended solution is to provide speech recognition, if feasible within project scope. Note: If voice recognition is ruled out of scope, "the product" will not be able to provide feedback on the student's inputs. It would have to be provided by a teacher, and at that point, whether the practice is feasible to perform online would need to be reassessed.
	Teachers shall be able to find and play online practice activities by one of the following pillars: Phonics Vocabulary Phonological Awareness	

Identifier	Requirement	Notes
	Teachers shall be able to find and access resources by one of the following pillars:	
	• Phonics	
	Vocabulary	
	Phonological Awareness	
	Fluency	
	Comprehension	
	Writing	
	Teachers shall be able to find and play activities by standard in the following pillars:	
	• Phonics	
	Vocabulary	
	Phonological Awareness	
	Teachers shall be able to find and access resources by standard in the following pillars:	
	• Phonics	
	Vocabulary	
	Phonological Awareness	
	Fluency	
	Comprehension	
	Writing	

3.1.2 Content requirements

Identifier	Requirement	Notes
	The product shall contain new animated practice activities.	Estimate: 29 new animated practice activities.

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Identifier	Requirement	Notes
	The product shall contain new trial items.	Estimate: Approximately 19,700. (Pending budgetary approval)
	The product shall contain English language audio for all new instructions in online practice and assessment activities.	
	The online practice and assessment activities shall contain audio instructions presented in the following languages:	
	ArabicCantonese	
	EnglishHaitian–Creole	
	HmongKorean	
	Mandarin	
	PolishRussian	
	• Spanish	
	Vietnamese	

Identifier	Requirement	Notes
	The product shall augment the existing practice activity reports which display the following data: Percentage of all items correct Percentage correct by pillar Skills assessed by pillar	"shall augment " means the existing activity reports will be augmented with reporting by pillar.
	The Teacher's Guides print version shall contain pages revised for Phonics, Phonological Awareness, and Vocabulary.	Estimate: Total number of revised pages = 308.
	The existing 11 activities shall contain updated graphics and illustrations.	Refresh the graphics and illustrations to update the look and feel on the existing 11 activities (replace the original artwork on the existing to a more modern feel.)
	The existing User Guide shall be updated to reflect all the new content and functionality created with this release.	

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Identifier	Requirement	Notes
	The existing Help Center content shall be updated to reflect all the new content and functionality created with this release.	

3.1.3 Non-Functional requirements

Identifier	Requirement	Notes
	The design of the new animated activities shall reflect the learning objectives in the new pillars.	
	All new Phonics tasks shall be correlated to CCSS where a correlation exists.	
	All new Vocabulary tasks shall be correlated to CCSS where a correlation exists.	
	All Phonological Awareness tasks shall be correlated to CCSS where a correlation exists.	(Pending budgetary approval)

3.2 Teacher Resources Center

3.2.1 Functional Requirements

Identifier	Requirement	Notes
	Teachers shall be able to find resources using one of the following methods:	
	By Pillar	
	By Standard	

Identifier	Requirement	Notes
	Teachers shall be able to access the following selections:	
	Category/reading pillar	
	 Subcategory 	
	Specific lesson	
	Sub lesson	

3.2.2 Content Requirements

Identifier	Requirement	Notes
	The Home screen shall contain a new Teacher Resources Center tab.	Viewable by all but students.
	The Teacher Resources Center tab shall contain all the content from the current Resources disk.	May also include other materials (e.g., correlation charts)
	The Teacher Resources Center tab shall contain the new Teacher's Guide content from ©2011 and the revised content from ©2012.	
	The Teacher's Guide PDFs shall contain hyperlinks embedded in the text to resources included in the Teacher Resources Center.	
	The Teacher Resources Center tab shall contain new lesson plans in support of Common Core standards.	



3.3 Assessment and Reporting

3.3.1 Functional Requirements

Identifier	Requirement	Notes
	The product shall provide students with a context for assessments, which allows students to be assessed on material from different pillars with a seamless segue from the content of one pillar to the next.	 Suggested – 1 animated activity as context for each level (3 total.) PreK/K Grades 1–2 Grade 3
	Students shall be able to see visual representation of sounds being made.	 Recommended solutions include a video or faithful animation of a human mouth articulating the required sound.
		 This is intended for both practice and assessment for Phonics.
	Teachers shall be able to access and review a student's assessment responses at a subsequent time.	
	Teachers shall be able to access and review a student's assessment responses at a subsequent time.	

Identifier	Requirement	Notes
	Teachers shall be able to preview assessments via the product.	
	Teachers shall be able to hear a student's production of a phonetic sound at a subsequent time.	 This would be for assessment purposes. Recommended solution is to provide ability to store a student's recording for later playback.
	The product shall provide a means of capturing and responding to a student's typed responses.	This would be for assessment and/or practice purposes.
		Note that response via keyboard may not be appropriate for all students in the target age range.

Identifier	Requirement	Notes
	Teachers shall be able to generate assessment reports which track a student's achievements/progress against CCSS.	Reports are available for: Student Class School Group The reporting function already exists for these levels. These are new reports based on CCSS and will be added to the existing feature set.
	Teachers shall be able to assign assessments, or parts of assessments (by pillar), to individual students based on a student's achievements/progress against CCSS. Teachers shall be able to assign assessments, or	
	parts of assessments (by pillar), to managed groups based on students' achievements/progress against CCSS.	

Identifier	Requirement	Notes
	Teachers shall be able to assign all of the same types of assessments for all pillars.	 In other words, a teacher wants to easily assign one student or a group of students to start at the Entry Level position across all pillars Pending budgetary approval
	The assessment shall allow a student's true proficiency level, based on a range of skills within a pillar, to be determined.	Suggested solution: Adaptive assessments
	The assessment shall allow a teacher to determine the depth of a student's knowledge across a range of tasks within a pillar.	
	Teachers shall be able to choose between adaptive or "canned" assessment forms.	
	The student shall be able to have instructions repeated at will.	Suggested functionality: When student mouses over, the system will repeat the instructions.

Identifier	Requirement	Notes
	The product shall generate new assessment reports that display the following data:	
	 Percentage of all items correct Percentage correct by pillar 	
	Percentage correct by CCSS	
	Skills assessed by pillar	

3.3.2 Content Requirements

Identifier	Requirement	Notes
	The Assessment Roadmap shall contain PDFs of the Teacher's Guide pages.	This functionality currently exists. The PDFs should include the newly revised (links added) pages.
		2012 copyright versions plus any revisions made to Phonics and Vocabulary books.

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Identifier	Requirement	Notes
	The Assessment Roadmap shall contain lessons that provide instruction for Common Core standards addressed in the practice activities for which there is no instruction in the current TGs.	

Identifier	Requirement	Notes
	The product shall contain new online assessments that accomplish the following: • Assess student performance in the skills represented by • Inform placement within the tool • Provide prescriptive alignment of specific content	 Assessments will be for guidance within the program only, and not for standardise d diagnostic benchmarking. The second item ("Inform placement within the tool") is pending budgetary approval. The third item ("Provide prescriptive alignment of specific content") is pending budgetary approval.
	* shall contain placement recommendations for each pillar.	Keep the functionality that allows assessment results to inform activity assignment.

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Identifier	Requirement	Notes
	The new Foundations and Connections Assessments shall contain both test items and reading passages.	
	The product shall contain English language audio for instructions and items not used for testing reading fluency or reading comprehension.	Where appropriate.

3.3.3 Non-Functional Requirements

Identifier	Requirement	Notes
	* assessments shall be designed to be administered at the start, at points throughout, and at the end of the school year.	
	All *** assessments shall be correlated to CCSS where a correlation exists.	
	The state of base system software shall be upgraded to the latest released versions.	(i.e. PHP, Apache & MySQL.)

4 Compatibility

The following tables provide the list of operating systems and browsers currently supported in QA. The priorities will be outlined in the QA Recommended Test Environment document. The priorities are determined by QA from market share and business requirements. If specific combinations of operating systems and browsers are required, these should be called out by stakeholders and the business at the initial kick-off stages and QA will update priorities accordingly.

4.1 Operating Systems

The following Operating Systems are compatible with the current project. All systems must include the latest service packs.

- Win XP
- Win Vista
- Win 7
- Mac 10.5x
- Mac 10.6x
- Mac 10.7x
- Win 8
- OS 10.8

4.2 Browsers

The following Browsers are compatible with the current project.

- IE latest
- Chrome latest
- Safari latest
- Firefox latest

4.3 Machine Specs

The following Machine Specifications are the minimum requirement of hardware for compatibility with the current project.

- PC
- Mac

4.3.1 Processor (32 and 64 bit)

- Min 1.8 GHz
- Intel MAC (2 GHz)

4.3.2 RAM

- Min 512 MB
- Min 512 MB

4.3.3 Screen Resolution

- 1024x768
- 1024x768

4.4 Plug-Ins

The following Plug-Ins are required for viewing purposes of content on the current project. Older versions may need to be updated to the supported versions to view some content.

4.4.1 Supported Versions

4.4.1.1 Acrobat Reader

- 9
- 10

4.4.1.2 Flash player

- 10
- 11

4.4.1.3 QuickTime

• 7

4.4.1.4 Shockwave

• 11

4.4.2 Office

- 2007
- 2008
- 2010
- Open Office 3.3.0

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5 Issues/Concerns

5.1 Issues

No issues for the platform, other than those explicitly referenced in this document, have been identified as of the time of this document's publication.

5.2 Concerns

No additional concerns for the platform, other than those explicitly referenced in this document, have been identified as of the time of this document's publication.

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6 Appendices

6.1 Requirements Stakeholders

Name	Role	Location	Phone
	Senior Business Analyst	Dublin	+353 1 514 7705
	Content Architect	Dublin	+353 1 650 0346
	Senior Director Product Management	Boston	
	Product Manager	Home-based / Field Employee	
	Senior Editor	Austin	512-795-3643
	Program Manager	Dublin	+353 1 242 2640
Hooper, Dalton	Requirements Analyst	Orlando	407-345-2285
	Director Editorial	Austin	512-721-7012
	Program Manager	Austin	512-795-2731
	Senior Product Manager	Home-based	917-239-5666
	Learning Design Lead	Dublin	+353 1 650 0398
	Studio Design Manager	Dublin	+ 353 1 242 2621
	Project Manager	Dublin	+353 1 242 2677
	Program Manager	Dublin	+353 1 650 0354
	Project Manager	Dublin	+353 1 242 2630
	Manager, Requirements Analysis	Austin	512-721-7038

6.2 Additional Documentation Related to Project

No additional related documentation has been identified at this time.