



Instructional Materials Technology Information

Title: Math Expressions

Content Area: Math

Publisher: Houghton Mifflin Harcourt

Grades: K-6

Copyright: 2018

Instructional Materials Technology Information

Since EdReports released its first reviews five years ago, the materials landscape has changed dramatically, especially in the area of technology. District questions have evolved from ensuring materials could be accessed on older browsers and versions of operating systems to detailed questions about interoperability, compatibility, security, support, and digital design. These questions have become even more important during the pandemic as districts assess what instructional materials may work best in their communities not just in-person, but also remotely and in hybrid settings. Access to high quality instructional materials by all students is more important than ever, and technology plays an essential role in that access. To help provide technology information for materials that meet alignment criteria in Gateways 1 and 2, EdReports is requesting publishers answer the following questions to help consumers better understand the digital design and capabilities of their instructional materials.

- Section 1 provides broader questions most frequently asked of EdReports about the design of materials. These questions are meant to provide higher level, summary information.
- Section 2 provides more fine-grained details on aspects of design and functionality.

EdReports is seeking the most accurate, descriptive information about curricular products. We are not evaluating quality or desirability, but documenting features in materials to empower local schools and districts with information to select materials that will work best for them given their technological capabilities and instructional vision.

[Section 1: Usability Snapshot](#)

[Section 2: Technology Details](#)

- [Design](#)
- [System Access](#)

- [Technical Support](#)
- [Compatibility](#)
- [Accessibility](#)
- [Additional Technology Specifications](#)

Section 1: Usability Snapshot

This section includes questions on digital design and support that allows users quick access to essential information. Please do not exceed a 150 word limit per question. You may use or remove prompt text in providing additional details. Words in the detail prompt text will not count toward the word limit.

Questions	Check Only One				Details
	Yes with core product	Yes with dependencies	No	Under Development	
Are the materials designed so that students are able to access and complete work online?	X				Students can complete many assignments and assessments online. The online interactive Student Activity Book gives students the ability to submit answers and drawings to specific questions, explore using iTools at point of use to build conceptual understanding, and record their thinking in My Notebook. Both teachers and parents can review the work and provide feedback within My Notebook. In addition, the Personal Math Trainer includes lesson-aligned, auto-scored practice and assessment with data and reporting.

				<p>Online work does not require a 1:1 device ratio. Students do need their own accounts to log in to ThinkCentral, but students are able to log in to the same device during different sessions.</p> <p>If continuous internet connectivity is a concern, the HMH Player app allows offline student access to the eBooks, assessments, and other resources.</p> <p>An LMS is not required, but Common Cartridge is available for ingesting with an LMS.</p>
<p>In what ways do the materials support learning in hybrid settings (both in-person and remote learning) concurrently?</p>	<p>X</p>			<p><i>Math Expressions</i> has a range of instructional resources that can be easily adapted for implementation in a hybrid setting. While many of the lesson activities are designed for in-person group work with sustained math talk, students and teachers have access to the following resources to support remote learning environments:</p> <ul style="list-style-type: none"> ● Online iTools to build conceptual understanding, both during lessons and for independent free play ● Poggles Games for fluency and independent practice ● Daily Homework and Remembering for independent work ● Online Class Presentations and Activity Cards for teachers to lead activities, model

					<p>concepts, and facilitate discussions via video conferencing</p> <ul style="list-style-type: none"> • Individual Math Boards for students to show their work via video conferencing • Online Fluency Practice for independent work • Interactive RTI resources that can be assigned to students for targeted support around key concepts • Daily auto-scored practice and assessment through the Personal Math Trainer, with data and reporting for the teacher • Online Math Readers for each unit that can be used for group instruction or independent reading
Are tasks, activities, and lessons able to be printed either for in-class use or for use in at-home learning?	X				<p>The program has a range of printable PDFs for districts to create print materials for students who may not have internet access, including:</p> <ul style="list-style-type: none"> • Daily Homework & Remembering • Quick Practice • Daily Routines • Practice/Reteach/Challenge activities • Assessment Guide Tests • PARC/Smarter Balance Test Prep • Copymasters • Vocabulary Cards

<p>Is there instruction so students can work independently (or with an adult at home)?</p>	<p>X</p>			<p>Students can work within both the Personal Math Trainer and the Math Activity Center independently.</p> <ul style="list-style-type: none"> • The Personal Math Trainer in Homework mode provides videos, step-by-step problem-solving support, access to the eBook, and immediate feedback on student work. • The Math Activity Center includes independent Fluency Practice with feedback, Poggles Games for practice, and RTI videos and interactive tutorial lessons with feedback on student progress. • Adult support would be necessary for work assigned in the Assessment mode of the Personal Math Trainer as no assistive tools are provided in that mode. <p>The practice and assessments in the Personal Math Trainer, as well as the daily Homework & Remembering, are designed for students to work independently. In Grades K–2, students may rely on educators and guardians to read instructions aloud.</p>
<p>Does the technology facilitate a teacher’s ability to differentiate lessons, tasks, or other content for students?</p>				<p>The technology facilitates the teacher’s ability to differentiate for learners and provides an online/offline platform for all work to be completed via the HMH Player app. This feature also allows for</p>

interactive lessons to occur with one or all students, facilitating various forms of instruction, tutorials with a teacher, and more.

- The Personal Math Trainer in Homework and Practice mode will provide feedback to students directly as they complete assignments, give hints, and allow students to access help at point of use.
- Reports are available to the teacher that show student progress, mastery of both content and standards, and predictions on future performance.
- Teachers can make changes to existing assignments in the Personal Math Trainer, Workflow editor, or create their own from a curated bank of test questions, giving them ultimate control over how to assess students (in both quantity of items and item types).

Teachers have access to a range of flexible resources to differentiate instruction at point of use, including iTools and Class Presentations. For additional support beyond the instruction, the Math Activity Center provides a range of resources for differentiation. The Math Activity Cards have intervention, on-level, and challenge activities for independent student work, and teachers can

					assign Reteach/Practice/Challenge resources for each lesson, as well as Poggles Games.
Are there tutorials, videos, or other integrated supports in the materials to help educators to understand and/or utilize the materials?	X				<p>The teacher digital access includes interactive Getting Started with <i>Math Expressions</i> modules, covering a range of topics:</p> <ul style="list-style-type: none"> ● Research and Program Overview ● Student Experience ● Planning and Pacing ● Lesson Design ● Assessment ● Platform Basics <p>In addition, Professional Learning Videos at each grade level provide pedagogical insights around classroom content and strategy for using the program at point of use. At Grades K–2, Daily Routines videos for each unit are included. A Professional Learning Guide is also available in print and online.</p>
Are there tutorials, videos, or other integrated supports in the materials to help parents/guardians to understand and/or utilize the materials?	X				<p>Parents' Place, accessible via ThinkCentral, includes many supports to assist parents/guardians in understanding and utilizing the materials.</p> <ul style="list-style-type: none"> ● Parent letters introducing each unit are available in Vietnamese, Filipino, Chinese, Hmong, Korean, Arabic, Spanish, and English. ● Parent letters on accessing ThinkCentral are provided in English and Spanish.

					<ul style="list-style-type: none"> • Unit Overviews, an eGlossary, Problem Types, and Research/Math Background are also available to support parents. • Additional support through videos, the eBook, stepped-out problems, and instant feedback are provided by the Personal Math Trainer in Homework and Practice mode.
<p>Are all of the following audiences provided access to the product as part of the core purchase?</p> <ul style="list-style-type: none"> • parents/guardians • Educators (Teachers, Administrators, etc.) • Students 	X				<ul style="list-style-type: none"> • Parents/guardians and students can view progress, assigned and completed assignments, scores, and results from the student's dashboard on ThinkCentral. • Educators and students have their own accounts to access ThinkCentral. Parents or guardians can sign on using their students' accounts, where they will be able to see everything a student can see.
<p>Are the materials designed to integrate with a Learning Management System (LMS)?</p>	X				<p><i>Math Expressions</i> is accessible via the IMS Global Common Cartridge Standard. This offering combines the high-quality curriculum with the IMS interoperability standards to deliver digital content that can be accessed in an IMS-conformant LMS. HMH Common Cartridges are currently compliant to the following IMS interoperability technical specifications: CC v.1.2 (Thin Profile), CC v.1.3 (Thin Profile), and QTI v2.1.</p>

<p>Does all content conform to the National Instructional Materials Accessibility Standard?</p>	<p>X</p>				<p>In compliance with the requirements of the Individuals with Disabilities Education Act (IDEA) of 2004 and its latest revision in 2006, HMH provides electronic files to the National Instructional Materials Access Center (NIMAC) system for all printed textbooks and other required core content. These materials can be converted into alternative assistive technology products for braille, large print, and screen reader programs via a National Instructional Materials Accessibility Standard (NIMAS) file on the NIMAC system. To see the range of HMH programs available from NIMAC, please visit https://nimac.overdrive.com/ContentInventory.</p>
<p>Is technical support during day-to-day use primarily the responsibility for the client or the publisher?</p>	<p>X</p>				<p>Technical support is available for teachers, administrators, school-level and district-level technology leaders, and students/families throughout the duration of the contract. Support is offered by phone, email, web form, and web-based self-service. Please see our response in the Technical Support section of this questionnaire for additional details.</p>

Section 2: Technology Checklist

The following checklists are designed to give more detailed information about digital design and technical capabilities in key areas of instructional materials to support state and local decision making. This list reflects details commonly requested by those making purchasing decisions at the state or local level. You may use or remove prompt text in providing additional details.

Design

Design questions address whether the materials are designed to be used digitally in an in-person environment, remote learning environment, or both. Digital design can vary, often ranging from the ability to access files that are identical to print materials online to doing tasks and assessments as part of the program. The ability to take advantage of design functionality may depend on answers to questions in other sections of the checklist such as internet capabilities, number and type of devices, etc.

*** Note:**

“**Yes with core product**” below should be used to indicate functionality in the materials purchased that are available without LMS integration.

“**Yes with dependencies**” below refers to functionality present or accessible only through working in a separate LMS, by utilizing other software as a plug-in, or linking externally to sites outside the materials.

Questions	Check Only One				Details
	Yes with core product	Yes with dependencies	No	Under Development	
Are the materials designed to be used with both digital and print components?					If yes, <ul style="list-style-type: none"> • What are the print options? ___x___ Purchase hard-copy books/workbooks _____ Photo copies available for purchase
Are there print options available for student-facing materials that could be	X				

<p>utilized in a blended digital approach?</p> <p>Is the print content identical, similar, or comparable to the digital?</p>				<p><u> x </u> Users can print at home</p> <p>All student-facing materials in print are available online and can be utilized in a blended digital approach. Within online student accounts, students have free-play access to the eBook, interactive student lessons, and other resources.</p> <p>Teachers can assign many resources as interactive, auto-scored assignments. Teachers also have access to additional printable, online content to use in a blended environment or for remote learning.</p> <p>The print Student Activity Book and assessments are identical to the digital versions. ¶</p>
<p>Is the digital design of the materials intended to replicate a textbook experience?</p>	<p>X</p>			<p>All <i>Math Expressions</i> materials that are available in print are also available online in printable and/or interactive formats.</p> <p>The print, write-in Student Activity Book is available as a digital eBook with interactive features that allow the students to highlight, take notes, and submit answers.</p>
<p>Are digital teacher guides available for the materials?</p>	<p>X</p>			<p>Teachers access the digital Teacher’s Edition and additional teacher resources on ThinkCentral. These resources are directly connected to student-facing lessons. The Teacher’s Edition addresses common errors, supports student discourse, and provides</p>

				<p>guiding questions and strategies.</p> <p>Parents and guardians cannot access the answer keys and Teacher's Editions, but parents do have access to all content that a student sees via a student account login.</p>
Do the materials contain videos/animations/simulations for student learning?	X			<p><i>Math Expressions</i> provides students with access to a multitude of resources for student learning which are all accessible on ThinkCentral. iTools are provided as virtual manipulatives that students may use as an at-home manipulative option. Poggles online games support practice and fluency building in a free-play environment. Students can also access interactive RTI resources and video tutorials.</p>
Is any or all online content dependent on links that are not maintained by the publisher?		X		<p>The vast majority of content is housed on ThinkCentral and maintained by HMH. Some of the Personal Math Trainer content is dependent on a third-party provider.</p>
Do the materials include opportunities for online collaboration among students?			X	<p>The activity-based instruction in <i>Math Expressions</i> encourages in-person collaboration and Math Talk in a blended learning environment. Student privacy laws restrict our ability to record and share work. However, teachers may conduct remote learning classes via video conferencing, allowing students to share their screens, show their work on Math Boards, and engage in Math Talk.</p>

Do the materials include built in features for student-to-teacher interaction?			X	Interactive lessons and practice provide opportunities for students to share mathematical reasoning with teachers. Teachers can review student answers, as well as reports from the Personal Math Trainer assessments, in the Student Activity Book.
Is a 1:1 device ratio required?			X	<p>A 1:1 ratio is not required, and the lessons encourage collaboration with peers. Students do need their own accounts to log in to ThinkCentral, but students are able to log in to the same device during different sessions.</p> <p>Teachers have the ability to assign assessments and differentiated resources online, which allows them to assess individual understanding and address specific learning needs for each student. Teachers can utilize computer labs or shared classroom sets of devices for students to complete these assignments if a 1:1 ratio is not accessible.</p>
Are the assessments contained within the materials able to be securely completed by students online?	X			<p>All assessments can be securely completed by students online, and individual log-ins are required to access assigned assessments such benchmark tests and module tests.</p> <p>If teachers wish to customize assessments, the Workflow Editor (Assignments > Custom Resources > Create) can be used to create Custom Assessments for any items that are part of the Personal Math Trainer.</p>

<p>Is data available about user sessions (e.g., timestamps, content being viewed, callbacks fired, etc...)?</p>	<p>X</p>			<p>When teachers create an assignment, they can see student status (not started, in progress, complete) and can see the start date and complete date.</p>
<p>Are there online professional learning supports to help teachers utilize the materials?</p>	<p>X</p>			<p><i>Math Expressions</i> provides many embedded opportunities for online professional learning. Teachers have online access to interactive Getting Started with <i>Math Expressions</i> modules. These modules are designed to help teachers navigate the digital experience as well as to orient teachers to the program.</p> <p>In addition, Professional Learning Videos at each grade level provide pedagogical insights around classroom content and strategy for using the program at point of use. At Grades K–2, Daily Routine videos for each unit are included. A Professional Learning Guide is also available in print and online.</p> <p>Additional Professional Learning courses with our Math Solutions specialists are available to support implementation success.</p>
<p>Are there parent/guardian resources available for school systems to utilize:</p> <ul style="list-style-type: none"> • For when there is in-person instruction? 	<p>X</p>			<p>Parent and guardian resources are available for schools to utilize in a variety of instructional environments. Parents' Place, accessible via ThinkCentral, includes many supports to assist</p>

<ul style="list-style-type: none"> • For when there is hybrid instruction? • For creating continued learning plans for distance learning schedules? 					<p>parents/guardians in understanding and utilizing the materials.</p> <ul style="list-style-type: none"> • Parent letters introducing each unit are available in Vietnamese, Filipino, Chinese, Hmong, Korean, Arabic, Spanish, and English. • Parent letters on accessing ThinkCentral are provided in English and Spanish. • Unit Overviews, an eGlossary, Problem Types, and Research/Math Background are also available to support parents. <p>The Help section on ThinkCentral addresses commonly asked questions about navigating and using the platform.</p> <p><i>Math Expressions</i> Essential Content Frameworks, along with additional practice resources, have been posted on the HMH Math Hub for educators and parents/guardians to support planning and pacing for distance learning at each grade level.</p>
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Learning Management Systems	Blackboard	Canvas	Eduphoria	Google Classroom	ItsLearning	Moodle	Schoology	Other: Please list below
Are the materials configured to work with one or more learning management	x	x	(x)	x	x	Moodle does not support this	x	See comment below

systems? Check all that apply.

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HMH Common Cartridges program packages for *Math Expressions* include both Common Cartridge and QTI files. They are certified at the following IMS Global technical specifications: CC v1.2 and QTI v2.1. These are designed to be used with LMS platforms that support the same technical specifications. To see which platforms are certified, please visit www.imslobal.org. Note that CC & QTI experiences are subject to the proprietary functionality of LMS platforms and may not exactly match the HMH platform experience.

HMH does not import the files into third party platforms on behalf of customers, and as such does not charge for that service.

(x) HMH offers a 90-day Digital Evaluation Agreement to allow educational institutions to test functional capabilities of CC & QTI in their selected systems.

System Access

System access questions address how users access the digital materials and what kind of logins/passwords are accepted/supported/required.

*** Note:**

“**Yes with core product**” below should be used to indicate functionality in the materials purchased that are available without LMS integration.

“**Yes with dependencies**” below refers to functionality present or accessible only through working in a separate LMS, by utilizing other software as a plug-in, or linking externally to sites outside the materials.

Questions	Check Only One				Details
	Yes with core product	Yes with dependencies	No	Under Development	

Is single sign-on supported?	X				<ul style="list-style-type: none"> • Google SSO • SAML, OpenID Connect • ClassLink
Can the platform manage staff assigned to multiple schools with a single sign-on?	X				
Can co-teachers be assigned to multiple classes?			X		
Can students who move between teachers or schools using the same materials be re-assigned without losing their work/progress?	X				Yes, ThinkCentral rostering tools accommodate student mobility workflows, and the appropriate core programs will be available to the student in the context of the new class the student is now in via the rostering tools. If the move is between teachers (i.e., change class teacher in a school), then students will not lose their work/progress. However, if it's between schools, then students will see only completed assignments.
Can the platform provide user accounts for staff members (principals and other admin) who are not assigned students?	X				They can be added as a school admin, giving them rights to all users in the selected school.

Can passwords be reset without assistance from trained IT staff?	X				<ul style="list-style-type: none"> • Teachers can use a “Reset Password” link, which will send them an email; they will then follow on-screen instructions. • Teachers can also set passwords for students in their class. • If using SSO, you can turn these features off and force all traffic through the SSO Portal.
When working offline, does the product automatically sync when a connection is re-established?	X				<p>The HMH Player app is an exciting app from HMH that connects teachers and students directly to program content. With the app, teachers and students can access <i>Math Expressions</i> content while connected to the internet from an iPad, Chromebook, laptop, or desktop computer. Users can also download content to their devices for offline access at any time. Students and teachers will be able to view notes, highlights, and annotations that they have made while offline when they sign into their accounts on other devices.</p>

Technical Support

Technical Support questions are designed to help users understand what assistance to expect. These details are important to consider alongside local capacity for devices, networks, and use. Considering what level of independence users will have alongside these criteria can help schools and districts reflect on their needs for support.

*** Note:**
“Yes with core product” below should be used to indicate functionality in the materials purchased that are available without LMS integration.

“Yes with dependencies” below refers to functionality present or accessible only through working in a separate LMS, by utilizing other software as a plug-in, or linking externally to sites outside the materials.

Technical Support	Check Only One				Details
	Yes with core product	Yes with dependencies	No	Under Development	
Is technical support provided to districts during initial set-up and deployment?	X				HMH Technical Support will be available via phone and email during the initial setup period.
Is technical support provided during the duration of the contract?	X				<p>Technical support is available for teachers, administrators, school-level and district-level technology leaders, and students/families throughout the duration of the contract. Support is offered by phone, email, webform, and web-based self-service.</p> <ul style="list-style-type: none"> • Phone: 1.800.323.9239 (toll-free help desk with live specialists, Mon.–Fri., 7:00 a.m.–9:00 p.m. ET, excluding holidays) • Email: techsupport@hnhco.com • Webform support request tool: http://hnhco.force.com/customercase • Technical support library: https://customercare.hnhco.com/ (click on Technical Support tab at the top) • Help button: While on the platform, teachers and students can click the Help button. Help buttons on teacher accounts take the user to the Teacher Help site at http://downloads.hmlt.hnhco.com/Help/ThinkCentral/Teacher/index.htm#Dashbo

				<p>ard/Navigating_the_Dashboard.htm=&t=Teacher_Overview.htm</p> <ul style="list-style-type: none"> The Help button on student accounts leads to the Student Help site, http://downloads.hmlt.hmco.com/Help/TlinkCentral/Student/index.htm#t=Student_Home.htm The Help site for school-level and district-level administrators is http://downloads.hmlt.hmco.com/Help/TlinkCentral/Administrator/index.htm#t=Administrator_Overview.htm <p>The majority of requests that arrive by phone are solved within the first contact, and requests received by email/webform receive a response within 24 hours. When a service request involves a more complex issue, our team of technical experts immediately begins working toward a solution and continues to maintain their focus until the issue is resolved.</p>
If utilizing a free or trial version, is technical support provided?	X			Tech support is free for all programs, whether a pilot/trial or full purchase.
Are there self-service supports for troubleshooting?	X			Please see our above technical support response for details on available self-service methods.

Does technical support include planning for emergency access and district support?	X				HMH provides support for alternative access to our curriculum in times of crisis/need. More details can be found on our Learning Support page: https://www.hmhco.com/learningsupport
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Compatibility

Compatibility questions address technical compatibility specifications. It is designed to help users understand how the materials will look and operate on various devices. These details are important to consider alongside local capacity for devices, networks, and use. Understanding what devices function best can help determine users' needs for district device or technical support.

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“**Yes with dependencies**” below refers to functionality present or accessible only through working in a separate LMS, by utilizing other software as a plug-in, or linking externally to sites outside the materials.

Questions	Check Only One				Details
	Yes with core product	LMS Dependent	No	Under Development	
Does the product have a native mobile application?	X				There is an offline app available for content, though it does not offer the full system functionality that is available in the online version of iOS only.
Is the product browser-based?	X				Math Expressions is accessible via the web-based ThinkCentral on modern browsers that utilize HTML5 technology. Please see the following link for a listing of supported browsers:

					https://customer care.hmhco.com/csrportalnew/pts/platforms/ .
Does the product use responsive design for rendering on smartphones?			X		Smartphones are not supported due to the limited screen size. Devices with screens 7" and smaller will not render all program content.
Does the product use responsive design for rendering on tablet devices?	X				Please see our responses in the following table for supported devices and operating systems.
Does the product use responsive design for rendering on laptop devices?	X				Please see our responses in the following table for supported devices and operating systems.
Does the product use responsive design for rendering on desktop devices?	X				Please see our responses in the following table for supported devices and operating systems.
Are all users (students/teachers/staff/admin/parents) permitted to use the product on more than one device (e.g. computer at school and a laptop at home or a smartphone and a laptop)?	X				Licenses for HMH digital content allow for users to access program resources on multiple supported devices. Each licensed user is provided with their own login credentials.

Device Type	Mark box if device is compatible	Oldest operating system/version supported	Newest operating system/version supported	Details Indicate if the materials are designed for a specific device type or if they are generally compatible.
Windows	<input checked="" type="checkbox"/>	8.1	10	HMH maintains an updated Product Technology Snapshot that provides details on all supported operating systems and browsers as well as recommended configurations: https://customercare.hmhco.com/csrportalnew/pts/programs/details.html?id=962,
Linux	<input type="checkbox"/>			
Windows Tablet	<input checked="" type="checkbox"/>	8.1	10	
Apple Laptop/Desktop	<input checked="" type="checkbox"/>	Mac 10.4	Mac 10.5	
iPhone	<input type="checkbox"/>			
iPad	<input checked="" type="checkbox"/>	iOS 12 (7"+ screen)	iOS 13 (7"+ screen)	
Android Phone	<input type="checkbox"/>			
Android Tablet	<input checked="" type="checkbox"/>	Android 7.1 & above (7"+ screen)	Android 7.1 & above (7"+ screen)	
Chromebook/Chrome OS	<input checked="" type="checkbox"/>	latest	latest	
Amazon Fire OS	<input type="checkbox"/>			
Other E-Reader	<input type="checkbox"/>			
Interactive Whiteboard	<input type="checkbox"/>			

Browser		Operating System						
		Apple		Windows		Linux	Chrome OS	N/A
	Check if browser is compatible	Oldest version supported	Newest version supported	Oldest version supported	Newest version supported			
Chrome	<input checked="" type="checkbox"/>	latest	latest	latest	latest		latest	
Firefox	<input checked="" type="checkbox"/>	latest	latest	latest	latest			
Safari	<input checked="" type="checkbox"/>	latest	latest					
Edge (formerly Internet Explorer)	<input checked="" type="checkbox"/>			latest	latest			
Internet Explorer	<input type="checkbox"/>							
Other: _____	<input type="checkbox"/>							
Additional Notes:								

Accessibility

Curricula with digital capabilities integrate accessible supports in a variety of ways. Accessibility questions pertain specifically to diverse learners who may need specific supports to be able to successfully interact with materials.

Questions	Check Only One				Details
	Yes with core product	Yes with dependencies	No	Under Development	
Screen Readers	X				Alternative text-based versions (with screen reader capability) and core videos are provided in the Student Activity Books.
Screen Magnification Software		X			Built-In OS magnifier
Text Readers		X			Text-to-Speech functionality is built into the OS and Browsers in some cases
Adjustable Print Size				X	
Speech Input Software		X			Third party input software and hardware can be used at the user's discretion, but it is not something we test on.
Header Point Devices		X			Third party input software and hardware can be used at the user's discretion, but it is not something we test on.
Motion/Eye Tracking Devices		X			Third party input software and hardware can be used at the user's discretion, but it is not something we test on.

Single Switch Entry Devices		X			Third party input software and hardware can be used at the user's discretion, but it is not something we test on.
Braille Readers/ Display Devices		X			
Closed Captioning				X	
Alternative Input Devices		X			Third party input software and hardware can be used at the user's discretion, but it is not something we test on.
High Color Contrast Display Options				X	
Translation of Text to Other Languages			X		
Bilingual Dictionaries available for students			X		
Are there required accessories (headsets, speakers)?			X		
Multiple Playback of audio/video			X		We do not support third party audio/video players other than HMH built-in players.
Can students adjust the speed of audio/video playback?			X		
Are these accessibility supports able to be turned on/off?		X			User can disable read-along audio or video audio in favor of the screen reader or read text alternatives
Does all browser-based technology satisfy the Web Content Accessibility Guidelines or VPAT ?				X	The Math Expressions program's digital content targets accessibility compliance. Users can learn more here: http://downloads.hmlt.hmco.com/Help/ThinkCentral/Teacher/index.htm#t=Getting_St

[arted%2FAccessibility_Support.htm&rhsearch=accessibility&rhhlterm=accessibility&rhsyns=%20](#)

Additional Technology Specifications

Data Security and Privacy

Data Security and Privacy questions address how student data storage, disposal, and adherence to privacy laws are addressed. If applicable, privacy reports and/or certificates can be found next to the respective indicator.

Questions	Check Only One			Details
	Yes	No	Under Development	
Data Security: Are data elements encrypted at rest, i.e. in a database or file system?	X			<p>Houghton Mifflin Harcourt takes protection of our customers' user data very seriously. HMM has implemented and maintains technical, administrative, and physical security controls that are designed to protect the security, confidentiality, and integrity of personal information collected through our learning platforms from unauthorized access, disclosure, use, or modification.</p> <p>Our secure data management procedures include the following:</p> <ul style="list-style-type: none"> All user data are encrypted using standard Internet protocols;

			<ul style="list-style-type: none"> • All user data on our interface are transferred over HTTPS; • All user data in transit are protected by TLS 1.2; • All user data are housed on a scalable hosting architecture with AWS; • All user data are stored behind AES-256 encryption algorithms.
Data Security: Do the materials refer students to video, content, and other online sources that are not native to the materials?		X	
Data Security: Does the end-user licensing agreement allow customers to scrape data from the product?		X	<p>When the site is manually accessed by the users, data can only be extracted using the reporting features provided in the Product. The end-user license provides the details of the 'Terms of Service/Use.'</p> <p>Automated or bot-based content/data scrapping access to the products are controlled and regulated by the Web Application Firewall managed by the InfoSec Team. Any unknown bot access to the products is detected and blocked regularly. Exceptions to this control will be considered with a business justification requested and signed-off by the HMH business stakeholder.</p>
Privacy: Is personally-identifying student data provided to, generated by, or stored in any systems used by the product?	X		<p>Please see our PreK–12 Learning Platforms Privacy Policy at https://www.hmhco.com/privacy-policy-k12-learning-platforms for a listing of the types of data elements required to participate in our learning platforms. This includes information from administrators, teachers, and</p>

				students, including schoolwork, user-generated content, and usage.
Privacy: Does the product/vendor make their student privacy policy publicly available?	X			https://www.hmhco.com/privacy-policy-k12-learning-platforms
Privacy: Does the product conform with FERPA regulations (e.g., allows districts to maintain direct control of the student record, implements permissions to prevent unnecessary disclosures, etc.)?	X			Our compliance with FERPA is delineated at https://www.hmhco.com/privacy-policy-k12-learning-platforms .
Privacy: Has a third-party evaluated the product for FERPA compliance?		X		
Privacy: Does the product allow registration or data collection from children under the age of 13?	X			HMH Privacy Policy: https://www.hmhco.com/privacy-policy-k12-learning-platforms

Installation

Feature/Requirement/Specification	Check Only One			Details
	Yes	No	Under Development	
Is the product downloaded to individual devices: one-time internet connection required?	X			There is an offline app available for content, though it does not offer the full system functionality that is available in the online version. Content must be

				downloaded to the app prior to Internet disconnection and/or disruption.
Is the product installed on individual computers (from CD-ROM/DVD, flash drive, etc.): no internet connection required?		X		
Is the product installed on LAN/WAN (school or district server): no internet connection required for teachers/students after installation?		X		
Required server configuration. Do network admins need to ensure a specific set of domains are whitelisted to allow the internet traffic to those endpoints?	X			Please see https://customercare.hmhco.com/product/techsupport/CCTechSupportSearchResults.html?isid=52829 for details on URLs that should be whitelisted and allowed to pass through firewalls, proxies, and content filters.
Does the product support deployment through Mobile Device Management (MDM) systems?		X		
Does the product provide a detailed schedule of updates that minimizes access interruption?	X			Any updates required to support the ThinkCentral platform and/or Math Expressions will take place during low-traffic times—weekends, extended holiday breaks, and after 10:00 pm ET—in order to prevent disruption to users.
Does the login authentication use district protocols to establish unique and memorable usernames and passwords?	X			The program allows authorized users to establish unique student and staff IDs. Please refer to the following link for information on protocols: http://downloads.hmlt.hmco.com/Help/ImportMngmt/Administrator/#t=Overview.htm

Is there an option for concurrent user licensing?	X		Concurrent use is available based on the number of licenses purchased. That is, licenses for HMH digital content is per user. Licenses are managed by the Technology Contact appointed by the school district and can be deleted and re-issued each year.
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Standards Compliance/Certification	Check all that apply	Details
SIF		
CEDS		
EDUPUB		
Ed-Fi (SIS/ODS)		
Ed-Fi (Assessments)		
IMS Global (Competencies and Academic Standards Exchange)	X	Common Cartridge and QTI content implemented beginning BTS 2020 can be aligned with CASE standards in systems that support the specification.
IMS Global (Comprehensive Learner Record)		
IMS Global (Open Badges)		
IMS Global (One Roster)	X	Please refer to https://site.imsglobal.org/certifications?refinementList%5Borg_name%5D%5B0%5D=Houghton%20Mifflin%20Harcourt&refinementList%5Bstandar

		ds_lvix%5D%5B0%5D=OneRoster%C2%AE for a listing of all HMH OneRoster certifications.
IMS Global (Caliper Analytics)		
IMS Global (Question and Test Interoperability (QTI))	X	Please refer to https://site.msglobal.org/certifications?refinementList%5Borg_name%5D%5B0%5D=Houghton%20Mifflin%20Harcourt&refinementList%5Bstandards_lvix%5D%5B0%5D=Question%20and%20Test%20Interoperability%C2%AE%20%28QTI%29 for a listing of all HMH QTI certifications.
IMS Global (Learning Tools Interoperability (LTI))	X	Please refer to https://site.msglobal.org/certifications?refinementList%5Borg_name%5D%5B0%5D=Houghton%20Mifflin%20Harcourt&refinementList%5Bstandards_lvix%5D%5B0%5D=Learning%20Tools%20Interoperability%C2%AE%20%28LTI%29 for a listing of all HMH LTI certifications.
IMS Global (LTI Advantage)		Please refer to https://site.msglobal.org/certifications?refinementList%5Borg_name%5D%5B0%5D=Houghton%20Mifflin%20Harcourt&refinementList%5Bstandards_lvix%5D%5B0%5D=Learning%20Tools%20Interoperability%C2%AE%20%28LTI%29 for a listing of all HMH LTI certifications.
IMS Global (Common Cartridge)	X	Please refer to https://site.msglobal.org/certifications?refinementList%5Borg_name%5D%5B0%5D=Houghton%20Mifflin%20Harcourt&refinementList%5Bstandards_lvix%5D%5B0%5D=Common%20Cartridge%C2%AE for a listing of all HMH Common Cartridge certifications.
IMS Global (Lite Common Cartridge)		Please refer to https://site.msglobal.org/certifications?refinementList%5Borg_name%5D%5B0%5D=Houghton%20Mifflin%20Harcourt&refinementList%5Bstandards_lvix%5D%5B0%5D=Common%20Cartridge%C2%AE for a listing of all HMH Common Cartridge certifications.

		ds_lvix%5D%5B0%5D=Common%20Cartridge%C2%AE for a listing of all HMH Common Cartridge certifications.
IMS Global (Open Video)		
Other:		

Implementation and Scalability	Yes/No or Value
What is the average page load time?	It is the goal of HMH to have all pages load in a reasonable time (within a few seconds), though it is often impossible to predict specific behavior on a user's end due to the differences in each location and each machine's connection speeds, network bandwidth, browser settings, and other connectivity variables.
What is the required bandwidth per user?	All HMH platforms are global in scale and are currently supporting over a million users on a daily basis. We do recommend an average of 250 kbps of bandwidth per concurrent workstation or mobile device.
Are results of stress tests provided to customers?	No.
Is a disaster recovery plan for data provided to customers?	Yes. The ThinkCentral platform is a cloud infrastructure hosted by AWS. AWS uses a scalable hosting architecture, providing our customers with a cloud-based solution with failover capacity. All AWS services have operational redundancy, which would be included in an overall disaster resilience and recovery plan.
Are customers provided with a standardized implementation plan to ensure a successful rollout?	Yes. HMH has a standardized self-service path for implementation support for all programs or an ability to work with our preferred integration partner (ClassLink) with special benefits.
Does the service level agreement include uptime guarantees of at least 95% excluding planned maintenance/down-times?	Houghton Mifflin Harcourt is dedicated to providing our customers with the highest quality Technical Support, and we believe in addressing all customer issues in a timely manner. We strive to provide 99.9% uptime outside of our regularly-scheduled maintenance and update windows (weekends, extended holiday breaks, and after

	10:00 pm ET). In the event of an unplanned service outage, HMH will work diligently to resolve any technical issues the District may encounter as soon as possible.
Does the product require a VPN for off-site access?	No.

Standards Compliance/Certification	Check all that apply	Details
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CEDS		
EDUPUB		
Ed-Fi (SIS/ODS)		
Ed-Fi (Assessments)		
IMS Global (Competencies and Academic Standards Exchange)	X	CC/QTI content implemented beginning BTS 2020 will align with CASE.
IMS Global (Comprehensive Learner Record)		
IMS Global (Open Badges)		
IMS Global (One Roster)	X	Please refer to https://site.msglobal.org/membership/members/houghton-mifflin-harcourt/37301?from_cert=true for a listing of all active HMH certifications.
IMS Global (Caliper Analytics)		

IMS Global (Question and Test Interoperability (QTI))	X	Please refer to https://site.imsglobal.org/membership/members/houghton-mifflin-harcourt/37301?from_cert=true for a listing of all active HMH certifications.
IMS Global (Learning Tools Interoperability (LTI))	X	Please refer to https://site.imsglobal.org/membership/members/houghton-mifflin-harcourt/37301?from_cert=true for a listing of all active HMH certifications.
IMS Global (LTI Advantage)		
IMS Global (Common Cartridge)	X	Please refer to https://site.imsglobal.org/membership/members/houghton-mifflin-harcourt/37301?from_cert=true for a listing of all active HMH certifications.
IMS Global (Lite Common Cartridge)		
IMS Global (Open Video)		
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