TECHNOLOGY GUIDELINES FOR PARCC ASSESSMENTS
VERSION 4.0 – February 2014 Update

Updates and additional technology resources are available at: **http://www.parcconline.org/technology**

***PLEASE NOTE: Technology Guidelines for PARCC Assessments v 4.0* updates, and therefore supersedes, the Version 3.0 document previously released in September 2013.**

Updates in Version 4.0 include:

- Final device and browser specifications for the Spring 2014 Field Test
  - Discontinued support for Mac OS 10.5 due to multimedia incompatibilities
  - Chrome OS version 33 requirements
  - Windows 8 tablet requirements
- Requirements for Chromebook and iPad secure TestNav applications
- Updated table of accessibility features and accommodations enabled for computer-based test administration of the PARCC Field Test
- Updated firewall and security guidance
- Reorganization of this document by Operating System

The Partnership for Assessment of Readiness for College and Careers (PARCC) has assembled these technology guidelines to inform schools and districts as they make technology decisions to best meet the instructional and assessment needs of their students. The information in this document is intended to help schools, districts, and states determine the level of readiness of their existing computer inventories and the new instructional hardware they may purchase as they implement the Common Core States Standards, and also evaluate whether they will meet PARCC's 2014-15 minimum requirements for computer-based assessment administration.

This document provides two sets of guidance regarding technical specifications:

Minimum Specifications

Minimum Specifications address the oldest operating systems and lowest levels of hardware capacity that can reasonably be compatible with PARCC computer-based assessments in 2014-2015.

- Minimum Specifications apply to existing school technology inventories.
- Computers meeting the Minimum Specifications can be considered as satisfying PARCC guidelines for **2014-2015**.

Considerations regarding computers meeting, but not exceeding, minimum specifications:

- Computers with these minimum specifications may *not* be adequate beyond the second year of PARCC assessments in **2015-2016**. PARCC recommends that schools upgrade or replace computers that have older operating systems and lower memory to raise their capacity to Recommended Specifications levels as soon as possible.
- Computers that meet only the Minimum Specifications will be compatible with the PARCC assessment delivery platform, but may be more likely to experience slower performance than higher capacity computers.

Recommended Specifications

Recommended Specifications outline the levels of computer and network capacity that are more likely to meet growing demands for school technology that supports learning, assessment, and administrative uses simultaneously across classrooms.

- Recommended Specifications apply to both existing inventory and new hardware purchases.
- Computers meeting the Recommended Specifications can be expected to satisfy PARCC guidelines through the **2018-2019** school year.

The sections in this document include:

- TECHNOLOGY GUIDANCE FOR DECISION MAKING
- INFORMATION REGARDING TECHNOLOGY SPECIFICATIONS FOR THE SPRING 2014 FIELD TEST
- DEVICE AND BROWSER SPECIFICATIONS FOR PARCC ASSESSMENTS
- PROCTOR CACHING REQUIREMENTS
- COMPUTER-BASED ACCESSIBILITY FEATURES AND EMBEDDED ACCOMMODATIONS AVAILABLE FOR PARCC ASSESSMENTS

TECHNOLOGY GUIDANCE FOR DECISION MAKING

While PARCC's ongoing processes for assessment and technical platform design continue, *Technology Guidelines for PARCC Assessments Version 4.0*, **is intended to help states and districts inform their own readiness preparations and decision-making.** As test components are piloted through the PARCC Field Test in Spring 2014, PARCC will continue to supplement the guidance in this document to reflect current knowledge about what states will need to administer PARCC's computer based assessment components. The most current version of this document and most up-to-date information is maintained at http://www.parcconline.org/technology.

INFORMATION REGARDING TECHNOLOGY SPECIFICATIONS FOR THE SPRING 2014 FIELD TEST

In spring 2014, the PARCC Field Test will be administered to over one million students across PARCC states. The technology requirements for the Field Test are a subset of PARCC's overall technology guidelines. However, some parts of the PARCC assessment delivery system will be in development during the PARCC Field Test year; as a result, a few operating systems and accessibility features that will *not* be supported during the PARCC Field Test will still ultimately be supported for the 2014-2015 operational assessments. To best communicate the distinct elements of the technology guidance that apply during field testing, PARCC is maintaining a specific set of documentation, training, and support materials for the field test.

For the full list of device specifications, accessibility features and accommodations available during the PARCC Field Test, please see the **Full Technology Specifications for PARCC Field Test** at http://www.parcconline.org/field-test-technology.

More detailed systems check tools, sample items, training sessions, and other technology implementation guidance for the PARCC Field Test can also be found at http://www.parcconline.org/field-test-technology.

DEVICE AND BROWSER SPECIFICATIONS FOR PARCC ASSESSMENTS

Devices that will be supported for the **PARCC Operational Assessments** are detailed below and include selected desktops, laptops, netbooks, thin client/VDI systems (Windows, Mac, Chromebook), and tablets (iPad and Windows). These devices will be compatible provided they meet the established hardware, operating system, browser and networking specifications – and are able to address the security requirements described in the following sections.

Web browser requirements for the PARCC Field Test and the 2014-2015 operational assessments are driven by browser compatibility with the Pearson TestNav 8 assessment delivery platform. Browsers that will be supported for the **PARCC Operational Assessments** are detailed below based on operating system. Schools using Chromebooks or iPads will need to download the TestNav 8 app and therefore do not have specific web browser requirements. Android and Linux operating systems will not be supported for the **PARCC Field Test**. Android and Linux devices are currently being tested and updated requirements will be posted by Summer 2014.

This section of the Technology Guidelines includes the following:

- **PARCC ASSESSMENT SPECIFICATIONS FOR WINDOWS DESKTOP AND LAPTOP USERS**
- **PARCC ASSESSMENT SPECIFICATIONS FOR MAC DESKTOP AND LAPTOP USERS**
- **PARCC ASSESSMENT SPECIFICATIONS FOR CHROMEBOOK USERS**
- **PARCC ASSESSMENT SPECIFICATIONS FOR LINUX USERS**
- **PARCC ASSESSMENT SPECIFICATIONS FOR iPAD USERS**
- **PARCC ASSESSMENT SPECIFICATIONS FOR WINDOWS TABLET USERS**
- **PARCC ASSESSMENT SPECIFICATIONS FOR ANDROID TABLET USERS**

WINDOWS: PARCC ASSESSMENT SPECIFICATIONS FOR WINDOWS DESKTOP AND LAPTOP USERS

Operating Systems Supported for PARCC Assessments	**Browser Specifications for Windows Operating Systems**				
	Internet Explorer 9.0	*Internet Explorer 10.0*	*Internet Explorer 11.0*	*Chrome Browser Version 31 or Higher*	*Firefox Version 25 or Higher*
XP (SP 3) [1] *Minimum Specification*	No	No	No	Yes	Yes
Vista *Minimum Specification*	Yes	No	No	Yes	Yes
Windows 7 *Recommended Specification*	Yes	Yes	Yes	Yes	Yes
Windows 8 *Recommended Specification*	No	Yes	No	Yes	Yes
Windows 8.1 *Recommended Specification*	No	No	Yes	Yes	Yes
Windows RT	TBD - Not Supported for Field Test.				

Additional Specifications for Windows Desktop, Laptop, Netbook, and Thin Client[2]/VDI Computers		
	Minimum Specifications[3]	*Recommended Specifications*
Memory	512 MB RAM or greater	1GB RAM or greater
Processor	Any Processor	Any Processor
Connectivity	Computers must be able to connect to the Internet via wired or wireless networks.	Computers must be able to connect to the Internet via wired or wireless networks.
Screen Size	9.7 inch screen size or larger/ "10-inch class" tablets or larger	9.7 inch screen size or larger/ "10-inch class" tablets or larger
Screen Resolution	1024 x 768	1024 x 768
Input Device Requirements for All Desktops and Laptops	Keyboard – wired or wireless/Bluetooth Mouse or Touchpad*	Keyboard– wired or wireless/Bluetooth Mouse or Touchpad*
	The input device must allow students to select/deselect, drag, and highlight text, objects, and areas. The input device must allow students to enter letters, numbers, and symbols and to shift, tab, return, delete, and backspace. To meet security guidelines, each Bluetooth/wireless keyboard must be configured to pair with only a single computer during assessment administration. *Windows 8.x touchscreen interfaces do not fully support TestNav 8 functionalities at this time. As a result, a mouse and keyboard are required for use with touchscreen tablets, touchscreen laptops, and touchscreen desktop monitors.	
Assistive Technologies	Assistive technologies in addition to the input devices listed in these guidelines may be needed for students requiring accommodations. PARCC has published a list of Assistive Technologies that have no known compatibility conflicts with the TestNav 8 test delivery system. The list will be continually	

<table>
<tr><td></td><td>updated as ongoing assistive technology usability research is conducted and can be found here: www.pearsononlinetesting.com/AssistiveTechnology or www.pearsononlinetesting.com/AT</td></tr>
<tr><td rowspan="2">Headphone/Earphone/ Ear bud Requirements</td><td>Headphones/Earphones/Ear buds</td><td>Headphones/Earphones/Ear buds</td></tr>
<tr><td colspan="2">Headphones/earphones/ear buds are only required for English Language Arts/Literacy testing sessions, not mathematics testing sessions (except for students who need them for accommodations such as text to speech).</td></tr>
<tr><td>Microphone Requirements</td><td colspan="2">Microphones will be required in 2016-1017 for the Speaking and Listening testing session.</td></tr>
<tr><td>Browser Dependencies Including Java runtime Plugin</td><td colspan="2">For proper functioning of the system, the following must be enabled:
Java runtime plugin version based on operating system and browser
<table>
<tr><th>Internet Explorer
9, 10 and 11</th><th>Chrome Browser
Version 31 or Higher</th><th>Firefox
Version 25 or higher</th></tr>
<tr><td>Java Version 1.5 and higher</td><td>Java Version 1.6 and higher</td><td>Java Version 1.6.30 and higher</td></tr>
<tr><td colspan="3">Note: Oracle Corporation has posted notice that a Java update will be issued on April 15, 2014. PARCC will share additional information as it becomes available</td></tr>
</table>
Windows firewall configured to allow javaw.exe to communicate
Allow Pop-ups for Pearson sites
Allow local File access to home directory
For proper functioning of the system, the following must be disabled:
All accelerators for Internet Explorer</td></tr>
<tr><td>Firewalls, Content, and Spam Filters</td><td colspan="2">Firewalls, content, and spam filters must be set to allow access to Pearson domains. When using Proctor Caching, the following must be opened in any firewalls, proxy servers, or software that is used for internet content filtering:
*testnav.com:80
*testnav.com:443
Pearson has updated the TestNav 8 requirements, based on feedback from PARCC schools, to enable school and district IT staff to better restrict the types of content that are allowed onto local networks. Specifically, this change allows school network administrators to allow traffic to only Amazon "S3" (the Simple Storage Service), via the "s3.amazonaws.com" URL. The previous white-list recommendation from Pearson allowed broader access to amazonaws.com services, potentially including content from web-applications that are hosting in Amazon's cloud environment. This change will allow Pearson to continue leveraging Amazon's highly elastic storage service for static content, while also providing a better mechanism for school networks to manage accessible content.

It is also important to note that this change is backwards compatible: TestNav will function correctly under the older white-listing requirements that enabled *amazonaws.com, or with the newer recommendations discussed here.</td></tr>
<tr><td>Security</td><td colspan="2">For the PARCC Field Test, eligible devices of any type (desktop, laptop, netbook, tablet, thin client) or operating systems (Windows, Mac, iOS, Chrome OS) must have the administrative tools and capabilities to “lock down” the device to temporarily disable features, functionalities, and applications that could present a security risk during test administration and should not prevent a PARCC secure browser or other test software from entering the computer into lock down mode. Features that will need to be controlled or prevented by TestNav during test administration include, but are not limited to, unrestricted Internet access, cameras (still and video), screen capture (live and recorded), email, instant messaging, application switching, and printing.</td></tr>
</table>

	The operating systems listed here as approved for PARCC assessments meet this security requirement, but provide different mechanisms for managing user security settings at the individual device and/or enterprise levels. School technology administrators should be familiar with the particular requirements of the systems they will be using for PARCC assessments to ensure test security is maintained. In addition, schools should configure the common applications listed below to NOT launch during testing sessions: • Anti-virus software performing automatic updates • Power management software on laptops warning of low battery levels • Screen savers and sleep mode • E-mail with auto message notification • Calendar applications with notifications, such as Google Calendar • TestNav 8 User Guide 3 • Pop-up blockers Schools can test the security lock down settings of their systems as part of the SystemCheck Tool now available for the PARCC Field Test. The SystemCheck Tool cannot be used for iPads and Chromebooks and therefore schools will have to check them manually. An updated tool will be available by August 2014 for the Year One Operational Assessment.
Additional Guidance	[1]Windows XP will no longer be supported by Microsoft after April 8, 2014, presenting security and support risks for schools. (http://windows.microsoft.com/en-US/windows/end-support-help) [2] Each computer operating in a thin client environment must meet or exceed minimum hardware specifications, as well as bandwidth and security requirements. [3] Computers meeting only the minimum specifications for the 2014-2015 assessment are not likely to be compatible beyond the 2015-2016 assessment.

MAC OS: PARCC ASSESSMENT SPECIFICATIONS FOR MAC DESKTOP AND LAPTOP USERS

Mac Operating Systems Supported for PARCC Assessments[4]	Browser Specifications for MAC Operating Systems			
	Safari 5.1	*Safari 6.0*	*Safari 7.0*	*Firefox Version 25 or Higher*
OS 10.6[5] *Minimum Specification*	Yes	No	No	Yes
OS 10.7 *Minimum Specification*	No	Yes	No	Yes
OS 10.8 *Recommended Specification*	No	Yes	No	Yes
OS 10.9 *Recommended Specification*	No	No	Yes	Yes

[4] Support for Mac OS 10.5 was discontinued by Pearson as a TestNav supported operating system as of February 2014 due to system incompatibilities found during TestNav 8 development related to the use of the audio and video player and text-to-speech functionalities. See the note below for more information.

[5] In certain situations when the parental control is on and the user attempts to connect to SSL sites, the automatic Internet content filter on Mac 10.6 workstations may block the testnav.com domain. To resolve this, set the parental control to "Always Allow" the testnav.com domain.

Additional Specifications for MAC Desktop, Laptop, and Thin Client[6]/VDI Computers		
	Minimum Specifications[7]	*Recommended Specifications*
Memory	1 GB RAM or greater	1 GB RAM or greater
Processor	Only Intel-based Macs are supported. Power Mac devices are not supported.	Only Intel-based Macs are supported. Power Mac devices are not supported.
Connectivity	Computers must be able to connect to the Internet via wired or wireless networks.	Computers must be able to connect to the Internet via wired or wireless networks.
Screen Size	9.7 inch screen size or larger/ "10-inch class" tablets or larger	9.7 inch screen size or larger/ "10-inch class" tablets or larger
Screen Resolution	1024 x 768	1024 x 768
Input Device Requirements for All Mac Desktops and Laptops	Keyboard – wired or wireless/Bluetooth Mouse or Touchpad or Touchscreen	Keyboard– wired or wireless/Bluetooth Mouse or Touchpad or Touchscreen
	The input device must allow students to select/deselect, drag, and highlight text, objects, and areas. The input device must allow students to enter letters, numbers, and symbols and to shift, tab, return, delete, and backspace. To meet security guidelines, each Bluetooth/wireless keyboard must be configured to pair with only a single computer during assessment administration.	
Assistive Technologies	Assistive technologies in addition to the input devices listed in these Guidelines may be needed for students requiring accommodations. PARCC has published a list of Assistive Technologies that have no known compatibility conflicts with the TestNav 8 test delivery system. The list will be continually updated as ongoing assistive technology usability research is conducted and can be found here: www.pearsononlinetesting.com/AssistiveTechnology or www.pearsononlinetesting.com/AT	
Headphone/Earphone/ Ear bud Requirements	Headphones/Earphones/Ear buds	Headphones/Earphones/Ear buds
	Headphones/earphones/ear buds are only required for English Language Arts/Literacy testing sessions, not mathematics testing sessions (except for students who need them for accommodations such as text to speech).	

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<tr><td>Browser Dependencies Including Java Runtime Plugin</td><td>For proper functioning of the system, the following must be enabled:
Java runtime plugin version based on operating system and browser
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<tr><td>Java Version 1.6.0.65 and higher</td><td>Java Version 1.6 and higher</td><td>Java Version 1.6.30 and higher</td></tr>
<tr><td colspan="3">Note: Oracle Corporation has posted notice that a Java update will be issued on April 15, 2014. PARCC will share additional information as it becomes available.</td></tr>
</table>
Allow Pop-ups for Pearson sites
Allow local File access to home directory
For proper functioning of the system, the following must be disabled:
All accelerators for Internet Explorer</td></tr>
<tr><td>Firewalls, Content, and Spam Filters</td><td>Firewalls, content, and spam filters must be set to allow access to Pearson domains. When using Proctor Caching, the following must be opened in any firewalls, proxy servers, or software that is used for internet content filtering:
*testnav.com:80
*testnav.com:443
Pearson has updated the TestNav 8 requirements, based on feedback from PARCC schools, to enable school and district IT staff to better restrict the types of content that are allowed onto local networks. Specifically, this change allows school network administrators to allow traffic to only Amazon "S3" (the Simple Storage Service), via the "s3.amazonaws.com" URL. The previous white-list recommendation from Pearson allowed broader access to amazonaws.com services, potentially including content from web-applications that are hosting in Amazon's cloud environment. This change will allow Pearson to continue leveraging Amazon's highly elastic storage service for static content, while also providing a better mechanism for school networks to manage accessible content.

It is also important to note that this change is backwards compatible: TestNav will function correctly under the older white-listing requirements that enabled *amazonaws.com, or with the newer recommendations discussed here.</td></tr>
<tr><td>Security</td><td>For the PARCC Field Test, eligible devices of any type (desktop, laptop, netbook, tablet, thin client) or operating systems (Windows, Mac, iOS, Chrome) must have the administrative tools and capabilities to “lock down” the device to temporarily disable features, functionalities, and applications that could present a security risk during test administration and should not prevent a PARCC secure browser or other test software from entering the computer into lock down mode. Features that will need to be controlled during test administration include, but are not limited to, unrestricted Internet access, cameras (still and video), screen capture (live and recorded), email, instant messaging, application switching, and printing.

The operating systems listed here as approved for PARCC assessments meet this security requirement, but provide different mechanisms for managing user security settings at the individual device and/or enterprise levels. School technology administrators should be familiar with the particular requirements of the systems they will be using for PARCC assessments to ensure test security is maintained. In addition, schools should configure the common applications listed below to NOT launch during testing sessions:
Anti-virus software performing automatic updates
Power management software on laptops warning of low battery levels
Screen savers</td></tr>
</table>

	• E-mail with auto message notification • Calendar applications with notifications, such as Google Calendar • TestNav 8 User Guide 3 • Pop-up blockers Schools can test the security lock down settings of their systems as part of the SystemCheck Tool now available for the PARCC Field Test. The SystemCheck Tool cannot be used for iPads and Chromebooks and therefore schools will have to check them manually. An updated tool will be available by August 2014 for the Year One Operational Assessment.
Additional Guidance	[6] Each computer operating in a thin client environment must meet or exceed minimum hardware specifications, as well as bandwidth and security requirements. [7] Computers meeting only the minimum specifications for the 2014-2015 assessment are not likely to be compatible beyond the 2015-2016 assessment.

Discontinuation of Mac OS 10.5 as a TestNav Supported Operating System

Support for Mac OS 10.5 was discontinued by Pearson as a TestNav supported operating system as of February 2014 due to system incompatibilities found during TestNav 8 development related to the use of the audio and video player and text-to-speech functionalities. Mac OS 10.5 does not support either an upgrade to Safari 5.1, the minimum required Safari version for TestNav 8, or to Firefox version 25 and higher. Both the Chrome and Opera browsers cannot be used, as Java cannot be enabled to lock down the browser. Videos are included intermittently across ELA and Math forms in each administration across grades; therefore Mac OS 10.5 will no longer be listed as a supported operating system for the PARCC Field Test. The PARCC-SBAC Technology Readiness Tool (TRT) and SystemCheck Tool have been updated accordingly. For districts/schools that require the use of Mac 10.5 devices for testing, a full infrastructure trial is highly recommended to test and ensure that video and audio components of the test are working without issue. Additionally, Pearson support will not provide specific Mac OS 10.5 troubleshooting support.

PowerMac devices running Mac OS 10.5 are not upgradable to newer operating systems. Schools with Intel based Macs running Mac OS 10.5 can upgrade to the newer 10.6 operating system software. Apple is offering PARCC schools a discounted price on version 10.6 (Snow Leopard). Contact your Apple representative for more information.

CHROME OS: PARCC ASSESSMENT SPECIFICATIONS FOR CHROMEBOOKS USERS

Operating Systems Supported for PARCC Assessments[8]	Browser Specifications for Chromebook Operating Systems
Chrome OS 33 or Higher[8] *Required Specification*	No Browser Requirement. The installation of a Chromebook-specific TestNav App is required.[9]

[8] Upgrading to Chrome 33 will resolve issues with the zoom functionality when using kiosk mode. Chrome 33 will be available March 7, 2014.

[9] Chromebooks cannot run Java therefore TestNav cannot lock down the device via a standard web browser. A secure Chromebook-specific application is utilized instead. The free Chromebook-specific TestNav app is now available in the Chrome Store. Updates to the app are being made in preparation for the Field Test and should auto update after initial download. We recommended that all Chromebook users use the Chrome Admin console to manage devices in order to ensure that the app is always refreshed and up to date. Schools should check to make sure they have the latest version of the app prior to the start of their Field Test Window. To download the app, go to the Chrome store and search for 'TestNav' or use the following direct link: https://chrome.google.com/webstore/detail/testnav/mdmkkicfmmkgmpkmkdikhlbggogpicma

Encrypted Student Response Files (SRFs) will be saved locally through this application.

Additional Specifications for Chromebooks and Thin Client[10]/VDI Computers		
	Minimum Specifications[11]	*Recommended Specifications*
Memory	Any Memory Size	Any Memory Size
Processor	Any Processor	Any Processor
Connectivity	Computers must be able to connect to the Internet via wired or wireless networks.	Computers must be able to connect to the Internet via wired or wireless networks.
Screen Size	9.7 inch screen size or larger/ "10-inch class" tablets or larger	9.7 inch screen size or larger/ "10-inch class" tablets or larger
Screen Resolution	1024 x 768	1024 x 768
Input Device Requirements	Keyboard – wired or wireless/Bluetooth Mouse or Touchpad	Keyboard– wired or wireless/Bluetooth Mouse or Touchpad
	The input device must allow students to select/deselect, drag, and highlight text, objects, and areas. The input device must allow students to enter letters, numbers, and symbols and to shift, tab, return, delete, and backspace. To meet security guidelines, each Bluetooth/wireless keyboard must be configured to pair with only a single computer during assessment administration.	
Assistive Technologies	Assistive technologies in addition to the input devices listed in these Guidelines may be needed for students requiring accommodations. PARCC has published a list of Assistive Technologies that have no known compatibility conflicts with the TestNav 8 test delivery system. The list will be continually updated as ongoing assistive technology usability research is conducted and can be found here: www.pearsononlinetesting.com/AssistiveTechnology or www.pearsononlinetesting.com/AT	
Headphone/Earphone/	Headphones/Earphones/Ear buds	Headphones/Earphones/Ear buds

Ear bud Requirements	Headphones/earphones/ear buds are only required for English Language Arts/Literacy testing sessions, not mathematics testing sessions (except for students who need them for accommodations such as text to speech).
Microphone Requirements	Microphones will be required in 2016-1017 for the Speaking and Listening testing session.
Security	For the PARCC Field Test, eligible devices of any type (desktop, laptop, netbook, tablet, thin client) or operating systems (Windows, Mac, iOS, Chrome) must have the administrative tools and capabilities to "lock down" the device to temporarily disable features, functionalities, and applications that could present a security risk during test administration and should not prevent a PARCC secure browser or other test software from entering the computer into lock down mode. Features that will need to be controlled during test administration include, but are not limited to, unrestricted Internet access, cameras (still and video), screen capture (live and recorded), email, instant messaging, application switching, and printing. Districts must configure Chromebooks for kiosk mode whenever TestNav is launched to deliver tests securely. Configuration can be completed through the Chrome Admin console or by adjusting settings on individual devices. Google charges a cost of $30 per Chromebook to allow group administration via the Chrome Admin console. To use Chromebooks as a testing platform, districts will need to confirm their devices are enrolled into their Google Apps domain. For more information, visit: https://support.google.com/chrome/a/answer/1360534?hl=en . The SystemCheck Tool cannot be used for Chromebooks and therefore schools will have to check device settings and security manually. Instructions for manually setting up Chromebooks for secure testing are available in the **PARCC Emerging Devices training** at https://parcc.tms.pearson.com/ or in the document **Using TestNav on a Chromebook** http://www.pearsononlinetesting.com/TestNav/8/devices/chromebook.html
Additional Guidance	[10] Each computer operating in a thin client environment must meet or exceed minimum hardware specifications, as well as bandwidth and security requirements. [11] Computers meeting only the minimum specifications for the 2014-2015 assessment are not likely to be compatible beyond the 2015-2016 assessment.

LINUX: PARCC ASSESSMENT SPECIFICATIONS FOR LINUX DESKTOP AND LAPTOP USERS

NOTE: Linux operating systems will not be supported for the PARCC Field Test. For the full list of device specifications, accessibility features and accommodations available during the PARCC Field Test, please see the **Full Technology Specifications for PARCC Field Test** at http://www.parcconline.org/field-test-technology . Linux devices are currently being tested and updated requirements will be posted by summer 2014.

Operating Systems Supported for PARCC Assessments	**Browser Specifications for Windows Operating Systems**	
	TBD- Not Supported for Field Test[12]	
TBD – Not Supported for Field Test [12]	TBD - Not Supported for Field Test [12]	
Additional Specifications for Linux Desktop, Laptop, Netbook, and Thin Client[13]/VDI Computers		
	Minimum Specifications[14]	*Recommended Specifications*
Memory	512 MB RAM or greater	1GB RAM or greater
Processor	TBD	TBD
Connectivity	Computers must be able to connect to the Internet via wired or wireless networks.	Computers must be able to connect to the Internet via wired or wireless networks.
Screen Size	9.7 inch screen size or larger/ "10-inch class" tablets or larger	9.7 inch screen size or larger/ "10-inch class" tablets or larger
Screen Resolution	1024 x 768	1024 x 768
Input Device Requirements for All Desktops and Laptops	Keyboard – wired or wireless/Bluetooth Mouse or Touchpad*	Keyboard– wired or wireless/Bluetooth Mouse or Touchpad*
	The input device must allow students to select/deselect, drag, and highlight text, objects, and areas. The input device must allow students to enter letters, numbers, and symbols and to shift, tab, return, delete, and backspace. To meet security guidelines, each Bluetooth/wireless keyboard must be configured to pair with only a single computer during assessment administration.	
Assistive Technologies	Assistive technologies in addition to the input devices listed in these Guidelines may be needed for students requiring accommodations. PARCC has published a list of Assistive Technologies that have no known compatibility conflicts with the TestNav 8 test delivery system. The list will be continually updated as ongoing assistive technology usability research is conducted and can be found here: www.pearsononlinetesting.com/AssistiveTechnology or www.pearsononlinetesting.com/AT	
Headphone/Earphone/ Ear bud Requirements	Headphones/Earphones/Ear buds	Headphones/Earphones/Ear buds
	Headphones/earphones/ear buds are only required for English Language Arts/Literacy testing sessions, not mathematics testing sessions (except for students who need them for accommodations such as text to speech).	
Microphone Requirements	Microphones will be required in 2016-1017 for the Speaking and Listening testing session.	
Browser Dependencies	TBD - Linux devices are currently being tested and updated requirements will be posted by summer 2014.	

Firewalls, Content, and Spam Filters	TBD - Linux devices are currently being tested and updated requirements will be posted by summer 2014.
Security	TBD - Linux devices are currently being tested and updated requirements will be posted by summer 2014.
Additional Guidance	[12] Linux operating systems will not be supported for the PARCC Field Test. Linux devices are currently being tested and updated requirements will be posted by Summer 2014. [13] Each computer operating in a thin client environment must meet or exceed minimum hardware specifications, as well as bandwidth and security requirements. [14] Computers meeting only the minimum specifications for the 2014-2015 assessment are not likely to be compatible beyond the 2015-2016 assessment.

iOS: PARCC ASSESSMENT SPECIFICATIONS FOR iPad USERS

iPad Operating Systems Supported for PARCC Assessments	Browser Specifications for iOS Operating Systems
iOS 6	No Browser Requirement. The installation of an iPad-specific TestNav App is required [15]
iOS 7	No Browser Requirement The installation of an iPad-specific TestNav App is required [15]

[15] Tablets running iOS 6 and higher cannot run Java so TestNav cannot lock down the device via the browser. The Ipad TestNav app is now available in the Apple App store. To download the app, go to the App Store and search for 'TestNav'. Student Response Files (SRFs) will be saved locally through the application.

Additional Specifications for iPads		
	Minimum Specifications[16]	*Recommended Specifications*
Memory	Any Memory Size	Any Memory Size
Processor	Any Processor	Any Processor
Connectivity	Tablets must be able to connect to the Internet via wired or wireless networks.	Tablets must be able to connect to the Internet via wired or wireless networks.
Screen Size	9.7 inch screen size or larger[17]/ "10-inch tablets or larger	9.7 inch screen size or larger[17]/ "10-inch class" tablets or larger
Screen Resolution	1024 x 768	1024 x 768
Input Device Requirements	Keyboard–wired or wireless/Bluetooth Touchscreen or Mouse	Keyboard– wired or wireless/Bluetooth Touchscreen or Mouse
	Due to the onscreen space occupied by a tablet's virtual keyboard, PARCC assessments will require external keyboards for test takers using tablets so as not to limit or obscure the view of test item content and related functionalities when text input is required. External keyboards must allow students to enter letters, numbers, and symbols and to shift, tab, return, delete, and backspace. Tablet touchscreen interfaces can be used for student interactions with the assessments other than text input, including to select/deselect, drag, and highlight text, objects, and areas. Keyboards may be wired or wireless. To meet security guidelines, each Bluetooth/wireless keyboard must be configured to pair with only a single computer during assessment administration.	
Assistive Technologies	Assistive technologies in addition to the input devices listed in these Guidelines may be needed for students requiring accommodations. PARCC has published a list of Assistive Technologies that have no known compatibility conflicts with the TestNav 8 test delivery system. The list will be continually updated as ongoing assistive technology usability research is conducted and can be found here: www.pearsononlinetesting.com/AssistiveTechnology or www.pearsononlinetesting.com/AT	
Headphone/Earphone/ Ear bud Requirements	Headphones/Earphones/Ear bud	Headphones/Earphones/Ear bud
	Headphones/earphones/ear buds are only required for English Language Arts/Literacy testing sessions, not mathematics testing sessions (except for students who need them for accommodations such as text to speech).	

Microphone Requirements	Microphones will be required in 2016-1017 for the Speaking and Listening testing session.
Security	For the PARCC Field Test, eligible devices of any type (desktop, laptop, netbook, tablet, thin client) or operating systems (Windows, Mac, iOS, Chrome) must have the administrative tools and capabilities to "lock down" the device to temporarily disable features, functionalities, and applications that could present a security risk during test administration and should not prevent a PARCC secure browser or other test software from entering the computer into lock down mode. Features that will need to be controlled during test administration include, but are not limited to, unrestricted Internet access, cameras (still and video), screen capture (live and recorded), email, instant messaging, application switching, and printing. Districts and schools must take additional steps to deliver tests securely. iPads must be configured for single app mode whenever TestNav is launched. TestNav will not allow a student to test if single app mode is not enabled. Single app mode disables hardware buttons and functions, including: • Home button (except for the triple-click function) • Side switch • Sleep/Wake button • Screen capture There are several options for districts to manage multiple iPads for secure testing. • Manually configure iPads for single app mode via Guided Access (iOS 6 and above) • Enable/Disable single app mode on multiple devices with Apple Configurator via USB (iOS 6 and above) • Enable/Disable single app mode on multiple devices wirelessly via Apple Profile Manager or third party Mobile Device Manager (MDM*) (iOS 6 and above) • Enable/Disable app requested single app mode on multiple devices via third party MDM* (iOS 7 and above) The SystemCheck Tool cannot be used for iPads and therefore schools will have to check device settings and security manually. Instructions for manually setting up iPads for secure testing are available in the PARCC Emerging Devices training at https://parcc.tms.pearson.com/ or in the document Using TestNav on an iPAD at http://www.pearsononlinetesting.com/TestNav/8/devices/iPad.html
Additional Guidance	[16] Computers meeting only the minimum specifications for the 2014-2015 assessment are not likely to be compatible beyond the 2015-2016 assessment. [17] Smaller tablets (screen size less than 9.7 in), e-readers, and smart phones will not be supported and will not be compatible with PARCC field test in spring 2014 or operational assessments in 2014-2015.

WINDOWS TABLETS: PARCC ASSESSMENT SPECIFICATIONS FOR WINDOWS TABLET USERS

Operating Systems Supported for PARCC Assessments	Browser Specifications for Windows Operating Systems				
	Internet Explorer 9.0	*Internet Explorer 10.0*	*Internet Explorer 11.0*	*Chrome Browser Version 31 or Higher*	*Firefox Version 25 or Higher*
Windows 8[18,19] *Minimum Specifications*	No	Yes	No	Yes	Yes
Windows 8.1[18,19] *Recommended Specifications*	No	No	Yes	Yes	Yes

[18] Tablets running Windows will only be supported with the use of a keyboard and mouse/touchpad. Touchscreen functionality will not be supported for the 2014 Field Test.
[19] Windows RT will not be supported for the PARCC Field Test. PARCC has not yet evaluated the compatibility of Windows RT for 2014-2015 operational assessments. Further information will be issued by the end of March 2014.

Additional Specifications for Windows Tablet		
	Minimum Specifications [20]	*Recommended Specifications*
Memory	512 MB RAM or greater	1GB RAM or greater
Processor	Intel Based Processor	Intel Based Processor
Connectivity	Computers must be able to connect to the Internet via wired or wireless networks.	Computers must be able to connect to the Internet via wired or wireless networks.
Screen Size	9.7 inch screen size or larger[21]/ "10-inch class" tablets or larger	9.7 inch screen size or larger[21]/ "10-inch class" tablets or larger
Screen Resolution	1024 x 768	1024 x 768
Input Device Requirements	Keyboard – wired or wireless/Bluetooth Mouse or Touchpad (Touchscreen input NOT supported for Field Test)	Keyboard– wired or wireless/Bluetooth Mouse or Touchpad (Touchscreen input NOT supported for Field Test)
	The input device must allow students to select/deselect, drag, and highlight text, objects, and areas. The input device must allow students to enter letters, numbers, and symbols and to shift, tab, return, delete, and backspace. To meet security guidelines, each Bluetooth/wireless keyboard must be configured to pair with only a single computer during assessment administration.	
Assistive Technologies	Assistive technologies in addition to the input devices listed in these Guidelines may be needed for students requiring accommodations. PARCC has published a list of Assistive Technologies that have no known compatibility conflicts with the TestNav 8 test delivery system. The list will be continually updated as ongoing assistive technology usability research is conducted and can be found here: www.pearsononlinetesting.com/AssistiveTechnology or www.pearsononlinetesting.com/AT	
Headphone/Earphone/ Ear bud Requirements	Headphones/Earphones/Ear bud	Headphones/Earphones/Ear bud
	Headphones/earphones/ear buds are only required for English Language Arts/Literacy testing sessions, not mathematics testing sessions (except for students who need them for accommodations such as text to speech).	

<table>
<tr><td>Microphone Requirements</td><td>Microphones will be required in 2016-1017 for the Speaking and Listening testing session.</td></tr>
<tr><td>Browser Dependencies Including java Runtime Plugin</td><td>For proper functioning of the system, the following must be enabled:
Java runtime plugin version based on operating system and browser
<table>
<tr><th>IE 9, 10 and 11</th><th>Chrome Version 31 or Higher</th><th>Firefox Version 25 or higher</th></tr>
<tr><td>Java Version 1.5 and higher</td><td>Java Version 1.6 and higher</td><td>Java Version 1.6.30 and higher</td></tr>
<tr><td colspan="3">Note: Oracle Corporation has posted notice that a Java update will be issued on April 15, 2014. PARCC will share additional information as it becomes available.</td></tr>
</table>
Windows firewall configured to allow javaw.exe to communicate
Allow Pop-ups for Pearson sites
Allow local File access to home directory
For proper functioning of the system, the following must be disabled:
All accelerators for Internet Explorer</td></tr>
<tr><td>Firewalls, Content, and Spam Filters</td><td>Firewalls, content, and spam filters must be set to allow access to Pearson domains. When using Proctor Caching, the following must be opened in any firewalls, proxy servers, or software that is used for internet content filtering:
*testnav.com:80
*testnav.com:443
Pearson has updated the TestNav 8 requirements, based on feedback from PARCC schools, to enable school and district IT staff to better restrict the types of content that are allowed onto local networks. Specifically, this change allows school network administrators to allow traffic to only Amazon "S3" (the Simple Storage Service), via the "s3.amazonaws.com" URL. The previous white-list recommendation from Pearson allowed broader access to amazonaws.com services, potentially including content from web-applications that are hosting in Amazon's cloud environment. This change will allow Pearson to continue leveraging Amazon's highly elastic storage service for static content, while also providing a better mechanism for school networks to manage accessible content.

It is also important to note that this change is backwards compatible: TestNav will function correctly under the older white-listing requirements that enabled *amazonaws.com, or with the newer recommendations discussed here.</td></tr>
<tr><td>Security</td><td>For the PARCC Field Test, eligible devices of any type (desktop, laptop, netbook, tablet, thin client) or operating systems (Windows, Mac, iOS, Chrome) must have the administrative tools and capabilities to “lock down” the device to temporarily disable features, functionalities, and applications that could present a security risk during test administration and should not prevent a PARCC secure browser or other test software from entering the computer into lock down mode. Features that will need to be controlled during test administration include, but are not limited to, unrestricted Internet access, cameras (still and video), screen capture (live and recorded), email, instant messaging, application switching, and printing.

The operating systems listed here as approved for PARCC assessments meet this security requirement, but provide different mechanisms for managing user security settings at the individual device and/or enterprise levels. School technology administrators should be familiar with the particular requirements of the systems they will be using for PARCC assessments to ensure test security is maintained. In addition, schools should configure the common applications listed below to NOT launch during testing sessions:
Anti-virus software performing automatic updates</td></tr>
</table>

	• Power management software on laptops warning of low battery levels • Screen savers • E-mail with auto message notification • Calendar applications with notifications, such as Google Calendar • TestNav 8 User Guide 3 • Pop-up blockers Schools can test the security lock down settings of their systems as part of the SystemCheck Tool now available for the PARCC Field Test. The SystemCheck Tool cannot be used for iPads and Chromebooks and therefore schools will have to check them manually. An updated tool will be available by August 2014 for the Year One Operational Assessment.
Additional Guidance	[20] Computers meeting only the minimum specifications for the 2014-2015 assessment are not likely to be compatible beyond the 2015-2016 assessment. [21] Smaller tablets (screen size less than 9.7 in), e-readers, and smart phones will not be supported and will not be compatible with PARCC field test in spring 2014 or operational assessments in 2014-2015.

ANDROID: PARCC ASSESSMENT SPECIFICATIONS FOR ANDROID TABLETS

NOTE: Android Tablets will not be supported for the PARCC Field Test. For the full list of device specifications, accessibility features and accommodations available during the PARCC Field Test, please see the **Full Technology Specifications for PARCC Field Test** at http://www.parcconline.org/field-test-technology . Android Tablets will not be supported for the PARCC Field Test. Android devices are currently being tested and updated requirements will be posted by Summer 2014.

Operating Systems Supported for PARCC Assessments	**Browser Specifications for Windows Operating Systems**	
	TBD - Not Supported for Field Test [22]	
TBD - Not Supported for Field Test [22]	TBD - Not Supported for Field Test [22]	
Additional Specifications for Android Tablet		
	Minimum Specifications [23]	*Recommended Specifications*
Memory	512 MB RAM or greater	1GB RAM or greater
Processor	TBD	TBD
Connectivity	Computers must be able to connect to the Internet via wired or wireless networks.	Computers must be able to connect to the Internet via wired or wireless networks.
Screen Size	9.7 inch screen size or larger[24]/ "10-inch class" tablets or larger	9.7 inch screen size or larger[24]/ "10-inch class" tablets or larger
Screen Resolution	1024 x 768	1024 x 768
Input Device Requirements	Keyboard – wired or wireless/Bluetooth Mouse, Touchpad Or Touchscreen	Keyboard– wired or wireless/Bluetooth Mouse, Touchpad Or Touchscreen
	The input device must allow students to select/deselect, drag, and highlight text, objects, and areas. The input device must allow students to enter letters, numbers, and symbols and to shift, tab, return, delete, and backspace. To meet security guidelines, each Bluetooth/wireless keyboard must be configured to pair with only a single computer during assessment administration.	
Assistive Technologies	Assistive technologies in addition to the input devices listed in these Guidelines may be needed for students requiring accommodations. PARCC has published a list of Assistive Technologies that have no known compatibility conflicts with the TestNav 8 test delivery system. The list will be continually updated as ongoing assistive technology usability research is conducted and can be found here: www.pearsononlinetesting.com/AssistiveTechnology or www.pearsononlinetesting.com/AT	
Headphone/Earphone/ Ear bud Requirements	Headphones/Earphones/Ear bud	Headphones/Earphones/Ear bud
	Headphones/earphones/ear buds are only required for English Language Arts/Literacy testing sessions, not mathematics testing sessions (except for students who need them for accommodations such as text to speech).	
Microphone Requirements	Microphones will be required in 2016-1017 for the Speaking and Listening testing session.	

Browser Dependencies	TBD - Android devices are currently being tested and updated requirements will be posted by Summer 2014
Firewalls, Content, and Spam Filters	TBD - Android devices are currently being tested and updated requirements will be posted by Summer 2014 that enabled *amazonaws.com, or with the newer recommendations discussed here.
Security	TBD - Android devices are currently being tested and updated requirements will be posted by Summer 2014
Additional Guidance	[22] Android Tablets will not be supported for the PARCC Field Test. Android devices are currently being tested and updated requirements will be posted by Summer 2014. [23] Computers meeting only the minimum specifications for the 2014-2015 assessment are not likely to be compatible beyond the 2015-2016 assessment. [24] Smaller tablets (screen size less than 9.7 in), e-readers, and smart phones will not be supported and will not be compatible with PARCC field test in spring 2014 or operational assessments in 2014-2015.

BANDWIDTH RECOMMENDATIONS

Minimum bandwidth requirements are based on the needs for the PARCC operational assessment, which are the same for the PARCC Field Test, and account for the maximum level of connectivity needed to administer test content for any one portion of the assessments for Math and English language arts/literacy, recognizing that some sessions may require less than the published minimum bandwidth. Schools with low bandwidth and/or large numbers of simultaneous users, including instructional and other non-assessment uses taking place concurrent with testing, are **strongly encouraged** to utilize PARCC's options for proctor caching, a strategy that will significantly reduce bandwidth demand for testing. Similarly, test forms including computer-delivered accommodations and accessibility features are anticipated to require more bandwidth and therefore caching for accommodated forms is **very strongly encouraged**.

External Connection to the Internet		
Minimum With Caching	**Minimum Without Caching**	**Recommended for Assessment + Instruction**
5 kilobits per second (kbps)/student	50 kilobits per second (kbps)/student	100 kilobits per second (kbps)/student or faster

Minimum Bandwidth - With Caching

Schools that wish to implement **Proctor Caching as a low-bandwidth solution for assessment administration should plan to have 5 kilobits per second (kbps) of available bandwidth in their external connection to the Internet for each simultaneous test-taker.** With proctor caching, a school or district's internal wired or wireless networks will distribute test content to student computers, but local internal network connection speeds may vary based on wireless network configurations or other factors. Proctor Caching software is available to all PARCC schools as part of the Pearson TestNav 8 delivery platform. PARCC strongly recommends proctor caching to increase the number of simultaneous testers that can be supported and to ensure a seamless test experience. The Proctor Caching User Guide contains step-by step instructions for using the Proctor Cache system to increase the number of simultaneous testers that can be supported.

Minimum Bandwidth - Without Caching

Schools that will have students connecting directly to the Internet during test administration should plan to have **50 kilobits per second (kbps) of available bandwidth for each simultaneous test-taker.** The fewer students that are testing at the same time, the lower the bandwidth demand will be. Schools participating in the field test can take advantage of the relatively small numbers of students that need to participate during the testing window to schedule fewer simultaneous test-takers and, therefore, lower their bandwidth need for the PARCC Field Test.

Recommended Bandwidth for Assessment + Instruction

As schools plan for PARCC assessments concurrent with their efforts to enhance bandwidth capacity that can support technology-rich learning environments, PARCC recognizes that schools are evaluating simultaneous uses of their networks that include instruction, assessment, professional development, and administrative processes. In response, PARCC is modeling the higher recommended bandwidth level on the recommendations of the State Educational Technology Directors Association in its May 2012 publication *The Broadband Imperative: Recommendations to Address K-12 Education Infrastructure Needs* (http://www.setda.org).

PROCTOR CACHING REQUIREMENTS

Caching is a secure option that will enable schools and districts to deliver interactive computer-based tests even in very limited Internet bandwidth conditions. Caching involves pre-downloading as much of the encrypted test content prior to testing as possible, staging it on a computer (or multiple computers) in a district network location(s), and distributing it to student test-taking computers from the caching server. These procedures will help to avoid potential bottlenecks from testing traffic due to slower network switches, a shared Internet connection, or any other constraint on large-scale assessment traffic.

PARCC's test delivery platform provider for the Field Test, Pearson, is making available to schools and districts a caching option known as "Proctor Caching" as part of the Pearson TestNav 8 delivery platform that PARCC will use for the Field Test and the first PARCC operational administration in 2014-2015. With proctor caching, a test administrator downloads test content only once from the Pearson server to the district or school. Encrypted assessment content resides on a computer within the school network, and is delivered during testing to each student's computer, where TestNav 8 then decrypts and displays the test content for students. Only the local network is used for delivering test content while the student is testing to help protect from Internet delays or other networking bottlenecks. Schools should plan on **bandwidth capacity equivalent to 5 kbps per simultaneous test-taker to implement proctor caching**.

Specifications for Proctor Caching[1]		
	Windows	*Mac*
Operating System	• XP (SP 3) • Windows Server 2003 • Windows Vista • Windows Server 2008 • Windows 7 • Windows Server 2012 • Windows 8	• Macintosh OS 10.6[2] • Macintosh OS 10.7 • Macintosh OS 10.6
Memory	1GB RAM or greater	1GB RAM or greater
Processor	1.6 GHz x86-compatible	Intel Core™ Duo 2.0GHz Only Intel-based Macs are supported
Firewalls, Content, and Spam Filters	Firewalls, content, and spam filters must be set to allow access to Pearson domains. When using Proctor Caching, the following must be opened in any firewalls, proxy servers, or software that is used for internet content filtering: • *testnav.com:80 • *testnav.com:443 Pearson has updated the TestNav 8 requirements, based on feedback from PARCC schools, to enable school and district IT staff to better restrict the types of content that are allowed onto local networks. Specifically, this change allows school network administrators to allow traffic to only Amazon "S3" (the Simple Storage Service), via the "s3.amazonaws.com" URL. The previous white-list recommendation from Pearson allowed broader access to amazonaws.com services, potentially including content from web-applications that are hosting in Amazon's cloud environment. This change will allow Pearson to continue leveraging Amazon's highly elastic storage service for static content, while also providing a better mechanism for school networks to manage accessible content.	

	It is also important to note that this change is backwards compatible: TestNav will function correctly under the older white-listing requirements that enabled *amazonaws.com, or with the newer recommendations discussed here.
Additional Guidance	[1] If you are using firewall software on the Proctor Caching computer, you must configure the firewall software to open ports 4480 and 4481 for TCP/IP on the local network. [2] In certain situations when the parental control is on and the user attempts to connect to SSL sites, the automatic Internet content filter on Mac OS X 10.6 workstations may block your test delivery domain, for example, testnav.com. To resolve this, set the parental control to "Always Allow" your test delivery domain, for example, testnav.com.

COMPUTER-BASED ACCESSIBILITY FEATURES AND EMBEDDED ACCOMMODATIONS AVAILABLE FOR PARCC ASSESSMENTS

During the PARCC field test administration, some accessibility features and accommodations will not be available due to ongoing development and research that is required to ensure that all accessibility features and accommodations provide a valid reflection of what students know and can do. In addition, some specific accessibility features and accommodations may not be available on specific devices such as Android and Linux devices.

The chart on the following page summarizes which accessibility features and computer-based accommodations will be supported for the PARCC Field Test versus the 2014-2015 operational assessment. Please note, this document only addresses accessibility features and accommodations that will be built into the computer-based delivery platform.

More detailed information about PARCC accessibility including accommodations for paper pencil forms can be found in the PARCC Accessibility Features and Accommodations Guidelines (http://www.parcconline.org/parcc-accessibility-features-and-accommodations-manual).

	Windows		Mac		iOS		Chromebook		Android		Linux		PARCC Manual Reference
	Spring '14	Fall '14	Spring '14	Fall '14	Spring '14	Fall '14	Spring '14	Fall '14	Spring '14	Fall '14	Spring '14	Fall '14	
Tools - Available for all users													
Available to all; Always available													
Flag Items for Review	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Notepad	No	Yes	No	Yes	No	Yes	No	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Zoom/Magnify	Yes	Yes	Yes	Yes	Yes	Yes	Yes[1]	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Available to all; Turned on/off at form/section level by Test Define													
Calculator – Scientific	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	Table 3, Page 30
Calculator - Five Function w/sq root	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	Table 3, Page 30
Compass	No	TBD	No	TBD	No	TBD	No	TBD	NA	TBD	NA	TBD	None
Eliminate Answer Choice	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Text Highlighter tool	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Pencil tool	No	TBD	No	TBD	No	TBD	No	TBD	NA	TBD	NA	TBD	None
Protractor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	Table 3, Page 30
Ruler (Inches/Centimeters)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	Table 3, Page 30
TI Graphing Calc	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	Table 3, Page 30
TI Scientific Calc (working with TI)	No	TBD	No	TBD	No	TBD	No	TBD	No	TBD	No	TBD	Table 3, Page 30
Available to all; Item/Passage-level feature													
Audio with Volume Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Cut/Copy/Paste (Writing Tools)[2]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Exhibits	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	None
Passage Paging	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	None
Pop-up Glossary (above grade-level vocab)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Spell Check[3]	No	Yes	Yes	Yes	Yes	Yes	TBD	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Video Playback	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	None

	Windows		Mac		iOS		Chromebook		Android		Linux		
	Spring '14	Fall '14	Spring '14	Fall '14	Spring '14	Fall '14	Spring '14	Fall '14	Spring '14	Fall '14	Spring '14	Fall '14	PARCC Manual Reference
Accommodated Forms features (can be turned on/off by proctor for FT; Operational = PNP-invoked)													
Answer Masking	Yes*	Yes	Yes*	Yes	Yes*	Yes	Yes*	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Assistive Technology (Devices vs. Software)[4]	No	TBD	No	TBD	No	TBD	No	TBD	NA	TBD	NA	TBD	Table 2, Page 27
External Devices (No-software component)[4]	Yes	Yes	Yes	TBD	Yes	TBD	Yes	TBD	NA	TBD	NA	TBD	
Devices/Software[4]	No	Yes	No	TBD	No	TBD	No	TBD	NA	TBD	NA	TBD	
Closed Captioning	No	Yes	No	Yes	No	Yes	No	Yes	NA	Yes	NA	Yes	Table 2, Page 27
Background/Font Color (Color Contrast) Settings	Yes*	Yes	Yes*	Yes	Yes*	Yes	Yes*	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Descriptive Video	No	Yes	No	Yes	No	Yes	No	Yes	NA	Yes	NA	Yes	Table 2, Page 27
General Masking	No	Yes	No	Yes	No	Yes	No	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Line Reader	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	Table 1, Page 22
Draggable Magnifier	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	Yes	
Refreshable Braille displays (ELA only)	No	TBD	No	TBD	No	TBD	No	TBD	NA	TBD	NA	TBD	Table 2, Page 27
Spanish supported. Add'l languages TBD	No	No	No	No	No	No	No	No	No	No	No	No	None
Text-to-Speech (for math) Text-to-Speech (for ELA)	Yes*	Yes	Yes*	Yes	Yes*	Yes	Yes*	Yes	NA	Yes	NA	Yes	Table 1, Page 22 Table 2, Page 27
Unrestricted/Accommodated Calculator Use	No	Yes	No	Yes	No	Yes	No	Yes	NA	Yes	NA	Yes	None
Video of Human Interpreter (math + directions)	No	Yes	No	Yes	No	Yes	No	Yes	NA	Yes	NA	Yes	Table 2, Page 27

*Accessibility Features/Accommodations will be available on limited grade/subject forms, per the research plan.

[1]Chrome OS 33 must be used to resolve known issues with the zoom functionality in kiosk mode

[2]Pearson - discovered inconsistency with non-IE browsers. Functionality still works; address through training.

[3]Pearson - discovered security issue with browser-based dictionary. Server side dictionary could lead to performance issues or inconsistent user experiences.

[4]Pearson - discovered inconsistency among browsers (Safari = 200%, Firefox = 300%, Chrome = 500%, IE = 1000%).

PARCC has published a list of Assistive Technologies that have no known compatibility conflicts with the TestNav 8 test delivery system. The list will be continually updated as ongoing assistive technology usability research is conducted. The following website is available for reference.
www.pearsononlinetesting.com/AssistiveTechnology or www.pearsononlinetesting.com/AT