PARCC | HOWARD™

PARCC is an alliance of 22 states plus the U.S. Virgin Islands working together to develop a common set of K-12 assessments aligned to the Common Core State Standards (CCSS) in English language arts (ELA)/literacy and mathematics, anchored in what it takes to be ready for college and careers. The CCSS call on students to have not only solid content knowledge but also the skills to apply their knowledge in ways demanded by colleges, careers, and citizenship in the 21st century. Measuring the full breadth of the CCSS will require new kinds of tests that measure what matters for students' futures. Moving to such an assessment system will require re-imagining assessments as we know them.

The next-generation assessment system envisioned by PARCC will have several benefits not found in current assessment systems including benefits to: students, who will know if they are on track to graduate ready for college and careers; teachers, who will receive results to guide learning and instruction; parents, who will have clear and timely information about the progress of their children; states, which will have valid results that are comparable across the member states; and the nation, since the assessments are based on the college- and career-ready, internationally-benchmarked CCSS.

The PARCC Vision

PARCC's assessments will yield significant advantages for educators, state policymakers, parents, and students. The PARCC assessments will measure what matters–the full range of the content and skills called for in the ELA/literacy and mathematics Common Core State Standards. Students will take parts of the assessment system at key times during the school year–closer to when they actually learn the material–giving teachers more timely information so they can adjust instruction and student supports as appropriate throughout the school year.

PARCC assessments will also be computer based in order to maximize technology and engage students and to deliver faster turnaround of student results. PARCC's high school assessments will be developed in collaboration with higher education and will tell students whether or not they are ready for entry-level postsecondary courses. Finally, states in PARCC will adopt common performance standards that will allow policymakers to compare results within and across states to identify pockets of innovation and achievement.

1 Build a Pathway to College and Career Readiness for All Students.
2 Create Better Assessments.
3 Support K-12 Educators in the Classroom.
4 Make Better Use of Technology in Assessments.
5 Advance Accountability at All Levels.

PARCC Desktop & Thin Client Specifications

NOTE *Desktops, laptops, netbooks (Windows, Mac, Chrome, Linux), thin client, and tablets (iPad, Windows, and Android) will be compatible devices, provided they meet the established hardware, operating system, and networking specifications.*

Operating System	Minimum Specifications	Recommended Specifications
Windows	[3,4]Windows XP – Service Pack 3	Windows 7 or newer
Mac OS	Mac OS 10.5	Mac OS 10.7 or newer
Linux	Ubuntu 9-10, Fedora 6	Linux: Ubuntu 11.10, Fedora 16 or newer
Chrome OS	Chrome OS 19	Chrome OS 19 or newer
Memory	512 MB of RAM	1 GB RAM or greater
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	9.5 inch screen size or larger	9.5 inch screen size or larger
Screen Resolution	1024 x 768 resolution[5] or better	1024 x 768 resolution[5] or better
Input Device Requirements	Keyboard Mouse/Touchpad/Touchscreen	Keyboard Mouse/Touchpad/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 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. Other assistive technologies may be needed for students requiring accommodations. PARCC will release Accessibility Guidelines and Accommodations Guidelines in June 2013.	
Headphone/Earphone and Microphone Requirements	Headphones/Earphones Microphone	Headphones/Earphones Microphone
	Headphones/earphones are required for all students for all PARCC assessments. Some student accommodations may also require headphones/ earphones (e.g., text to speech). Microphones are required for all students taking the Speaking and Listening Assessment. Some student accommodations may also require microphones (e.g., speech to text, voice controls) for other parts of the PARCC assessments.	
Additonal Guidance	[1] Each computer operating in a thin client environment must meet or exceed minimum hardware specifications, as well as bandwidth and security requirements. [2] Computers meeting only the minimum specifications for the 2014-2015 assessment are not likely to be compatible beyond the 2015-2016 assessment. PARCC recommends that schools upgrade from the oldest operating systems and lowest memory levels as soon as possible. [3] 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) [4] Computers running Windows XP-Service Pack 3 may require a web browser other than Internet Explorer due to HTML5 compatibility limitations. PARCC will issue specific web browser guidance by October 2013. [5] Computers must accommodate the 1024 x 768 screen resolution minimum without panning. PARCC recognizes that some netbook computers may have screen resolutions slightly less than the 1024 x 768 minimum, yet may meet all other minimum requirements. Depending on netbook model specifics, school technology administrators may be able to reset screen resolution to meet PARCC guidelines. By October 2013, following final test design, PARCC will establish a means for schools to evaluate if particular netbook devices are able to display PARCC assessment items without requiring students to scroll or pan.	

HOWARD™

Choice System

Howard Q67MKB
Super-charged levels of performance

Work faster than ever before with Howard's new Q67 desktop computer. Powered by the latest Intel® Core™ i7, i5, and i3 processors, you know it's fast! Now, add the integrated gigabit NIC, SuperSpeed USB 3.0, SATA-600, eSATA, FireWire, DDR3 and support for Intel's HyperThreading and Turbo Boost Technologies and you have an ultrafast desktop—one that delivers super-charged levels of performance and an abundance of high-speed connectivity.

NComputing™

NComputing Virtualization
Simple and owerful

NComputing's products represent technology breakthroughs as the result of our passion and focus on finding innovative ways to deliver the highest performance and quality at the lowest possible cost.

lenovo

Lenovo Desktops
Space-saving Design

Lenovo desktops are also available in a small form factor, a lighter and more compact unit with the same features (plus a slim option for the optical drive) and lower PSU wattage.

hp

HP Desktops
Power boosters

Be second-best at nothing when you select a high-performance PC with top-of-the-line processors, HD displays, and performance graphics.

vmware®

VmWare Virtualization
Maximum productivity

Virtualization makes your infrastructure vastly simpler and more efficient. Applications get deployed faster, performance soars, and operations become automated, resulting in IT that's less costly.

The PARCC States

State-based collaboration is the hallmark of PARCC, and collectively these states educate about 24 million students. PARCC is state-led and a subset of 19 PARCC states make up its Governing Board. PARCC is managed by Achieve, a nonprofit group with a 17-year track record of working with states to improve student achievement.
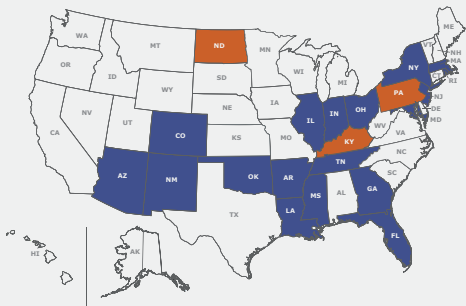
■ **Governing Board States**

■ **Participating States**
US Virgin Islands is a participating territory

The PARCC Schedule

PARCC is working on ambitious timeline to develop and deploy these new common assessments. States in PARCC will see increasing levels of activity between now and the 2014-2015 school year, when the new assessments are fully launched.

2010-11 School Year
Launch and begin design phase

2011-12 School Year
Development begins

2012-13 School Year Item tryouts and related research and data collection

2013-14 School Year Field testing and related research and data collection

2014-15 Full operational administration of PARCC assessment system

Summer 2015 Set achievement levels, including college-ready performance levels

PARCC Laptop and Chromebook Specifications

NOTE Desktops, laptops, netbooks (Windows, Mac, Chrome, Linux), thin clients, and tablets (iPad, Windows, and Android) will be compatible devices provided they meet the established hardware, operating system, and networking specifications.

Operating System	Minimum Specifications	Recommended Specifications
Windows	[3,4]Windows XP – Service Pack 3	Windows 7 or newer
Mac OS	Mac OS 10.5	Mac OS 10.7 or newer
Linux	Ubuntu 9-10, Fedora 6	Linux: Ubuntu 11.10, Fedora 16 or newer
Chrome OS	Chrome OS 19	Chrome OS 19 or newer
Memory	512 MB of RAM	1 GB RAM or greater
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	9.5 inch screen size or larger	9.5 inch screen size or larger
Screen Resolution	1024 x 768 resolution[5] or better	1024 x 768 resolution[5] or better
Input Device Requirements	Keyboard Mouse/Touchpad/Touchscreen	Keyboard Mouse/Touchpad/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 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. Other assistive technologies may be needed for students requiring accommodations. PARCC will release Accessibility Guidelines and Accommodations Guidelines in June 2013.	
Headphone/Earphone and Microphone Requirements	Headphones/Earphones Microphone	Headphones/Earphones Microphone
	Headphones/earphones are required for all students for all PARCC assessments. Some student accommodations may also require headphones/ earphones (e.g., text to speech). Microphones are required for all students taking the Speaking and Listening Assessment. Some student accommodations may also require microphones (e.g., speech to text, voice controls) for other parts of the PARCC assessments.	
Additonal Guidance	[1] Each computer operating in a thin client environment must meet or exceed minimum hardware specifications, as well as bandwidth and security requirements. [2] Computers meeting only the minimum specifications for the 2014-2015 assessment are not likely to be compatible beyond the 2015-2016 assessment. PARCC recommends that schools upgrade from the oldest operating systems and lowest memory levels as soon as possible. [3] 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) [4] Computers running Windows XP-Service Pack 3 may require a web browser other than Internet Explorer due to HTML5 compatibility limitations. PARCC will issue specific web browser guidance by October 2013. [5] Computers must accommodate the 1024 x 768 screen resolution minimum without panning. PARCC recognizes that some netbook computers may have screen resolutions slightly less than the 1024 x 768 minimum, yet may meet all other minimum requirements. Depending on netbook model specifics, school technology administrators may be able to reset screen resolution to meet PARCC guidelines. By October 2013, following final test design, PARCC will establish a means for schools to evaluate if particular netbook devices are able to display PARCC assessment items without requiring students to scroll or pan.	

HOWARD™

Merit System

Howard W130
True value and high performance

Howard's new, midsize W130 notebook computer goes head-to-head with the competition for speed, performance, and reliability. This durable, high-performance system is powered by Intel's 2nd generation i-Core™ processors to give you the speed you need, when you need it. It features the Intel® Q67 chipset, supports 802.11AGN and Bluetooth wireless options, and has SATA and SSD drive options for performance that is more secure, manageable, and responsive.

HP Laptops
Power boosters

HP Laptops have a best-in-class design, leading technologies, and are feature-rich with greater security, enhanced manageability, and premium customer support.

chrome

	Samsung Chromebook	Lenovo ThinkPad X131e Chromebook	Acer C7 Chromebook	HP Pavilion Chromebook
Screen	11.6" (1366x768) display	11.6" (1366x768) display	11.6" (1366x768) display	14.0" (1366x768) display
Thickness	0.7 inches	1.3 inches	1 inch	0.81 inches
Weight	2.5 lbs / 1.1 kg	3.9 lbs / 1.8 kg	3 lbs / 1.4 kg	3.96 lbs / 1.8 kg
Battery	Up to 6.5 hours of battery[2]	Up to 6.5 hours of battery[2]	Up to 4 hours of battery[2]	4-cell (37WHr) Li-Ion
Processor	Samsung Exynos 5 Processor	Intel® Celeron™ Processor	Intel® Celeron™ Processor	Intel® Celeron™ 847 (1.1GHz)
Memory	2 GB RAM	4 GB RAM	2 GB RAM	2 GB RAM
Storage	100 GB Google Drive Cloud Storage with 16 GB SSD drive	16 GB of SSD drive	100 GB Google Drive Cloud Storage with 320 GB Hard Drive	16 GB Solid State Drive or 32 GB Hard Drive
Wi-Fi	Built-in dual band Wi-Fi 802.11 a/b/g/n, 3G modem (opt)	Built-in dual band Wi-Fi 802.11 a/b/g/n and Ethernet	Built-in dual band Wi-Fi 802.11 a/b/g/n and Ethernet	Built-in dual band Wi-Fi 802.11 a/b/g/n and Ethernet
Camera	VGA Webcam	HD Webcam	HD Webcam	HP True Vision HD Webcam
Graphics		Intel® HD Gfx 3000	Intel® HD Graphics	Intel® HD Graphics
USB ports	1x USB 3.0 1x USB 2.0	2x USB 3.0 1x USB 2.0	3x USB 2.0	3x USB 2.0
Memory card	3-in-1 memory card slot	4-in-1 memory card slot	2-in-1 memory card slot	card reader
Display ports	HDMI port	HDMI port, VGA port	HDMI port, VGA port	HDMI port, RJ-45 (LAN)

Technology Guidance

While the ongoing processes for assessment and technical platform design continues, Technology Guidelines for PARCC Assessments is intended to help states and districts form their own readiness preparations and decision-making. As test components are piloted through Item Tryouts in 2013 and Field Testing in Spring 2014, PARCC will continue to supplement the guidance to reflect current knowledge about what states will need to administer PARCC's computer-based assessment components. The most current and most up-to-date information is maintained at http://www.parcconline.org/technology.

Security Requirements

Eligible devices of any type (desktop, laptop, netbook, tablet, thin client) or operating system (Windows, Mac, Linux, iOS, Android, 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 to be determined 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, Bluetooth connections, application switching, and printing.

PARCC Tablet Specifications

NOTE Desktops, laptops, chromebooks (Windows, Mac, Chrome, Linux), thin clients, and tablets (iPad, Windows, and Android) will be compatible devices provided they meet the established hardware, operating system, and networking specifications.

Operating System	Minimum Specifications	Recommended Specifications
Android	Android 4.0 (with 512 MB RAM or greater)	Android 4.0 or newer (with 1GB RAM or greater)
Apple iOS	iPad 2 running iOS 6 (with 512 MB RAM or greater)	iPad 2 or newer running iOS6 or newer (with 512 MB RAM or greater)
Windows	[6]Windows 8 (with 512 MB RAM or greater)	[6]Windows 8 or newer (with 1GB RAM or greater)
Memory	By operating system	By operating system
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	9.5 inch screen size or larger[7]	9.5 inch screen size or larger[7]
Screen Resolution	1024 x 768 resolution[5] or better	1024 x 768 resolution[5] or better
Input Device Requirements	Keyboard Mouse/Touchpad/Touchscreen	Keyboard Mouse/Touchpad/Touchscreen

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. Research studies to be conducted by PARCC in Spring 2013 are intended to yield data on students' use of virtual versus external keyboards. PARCC will refine this guidance as needed based on these results.

External keyboards must allow students to enter letters, numbers, and symbols and 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. To meet security guidelines, each Bluetooth/wireless keyboard must be configured to pair with only a single computer during assessment administration.

Other assistive technologies may be needed for students requiring accommodations. PARCC will release Accessibility Guidelines and Accommodations Guidelines in June 2013.

| **Headphone/Earphone and Microphone Requirements** | Headphones/Earphones Microphone | Headphones/Earphones Microphone |

Headphones/earphones are required for all students for all PARCC assessments. Some student accommodations may also require headphones/ earphones (e.g., text to speech).

Microphones are required for all students taking the Speaking and Listening Assessment. Some student accommodations may also require microphones (e.g., speech to text, voice controls)for other parts of the PARCC assessments.

| **Additonal Guidance** | [6]PARCC has not yet evaluated the compatibility of Windows RT for 2014-2015. Further information will be issued on Windows RT in Version 3.0 of the PARCC Guidelines. |

[7]Smaller tablets (screen size less than 9.5"), e-readers, and smart phones will not be supported and will not be compatible with PARCC assessments for 2014-2015.

NOTE The operating systems listed here as approved for PARCC assessments meet security requirements, 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.

lenovo

Lenovo Tablets
Redefining the Industry

Powered by Windows 8, ThinkPad tablets combine ultra-mobility, complete connectivity, and smooth multi-touch comfort with the traditional ThinkPad virtues of rugged reliability and unmatched security. Featuring the best that Lenovo, Microsoft and Intel have to offer, the ThinkPad Tablet 2 redefines the industry, delivering one productive, mobile, reliable and secure device to IT manager and end user alike.

acer

Acer Tablets
Empowering Education

Acer creates innovative technology for the classroom to help students broaden their horizons with new avenues of communication and interaction.

Discover the best solution for your *Mobile Device Management* needs.

As tablets, smart phones, iPads, and e-readers ease their way into the education system, school networks need a way to secure, configure, and manage all of these mobile devices. Mobile Device Management (MDM) is the key. It not only provides support for the increasing number of users, but also the ability to automatically identify and profile all devices and users on a network, enabling complete visibility and control.

MDM wireless solutions from AirWatch and Xirrus make it easy to enroll devices in your network quickly, configure and update device settings over-the-air, enforce security policies and compliance, and remotely wipe or lock managed devices. Let Howard help you take control with comprehensive, customizable MDM solutions.

airwatch™

Management

AirWatch's Mobile Device Management (MDM) solution enables you to manage large-scale deployments of mobile devices.

HOWARD™

Tablets

Engage students by allowing them to work from a mobile device in the classroom. Howard offers many brand-name convertible and slate tablets.

XIRRUS
High Performance Wireless Networks

Wireless

Xirrus offers customizable solutions for solving the guest access, device onboarding, and security challenges of BYOD.

Xirrus Wi-Fi Solutions
Infrastructure Products

The Xirrus Wi-Fi Array is the most powerful Wi-Fi solution in the industry, with enough capacity and performance to replace switched Ethernet to the desktop—ideal for offices, cubicles, conference rooms, auditoriums, campuses, warehouses, remote users, emergency response, etc.

Aerohive Networks
Infrastructure Products

Aerohive helps simplify networking by reducing the cost of distributed enterprise deployments with cloud-enabled networking solutions. These solutions, based on unique distributed intelligence architecture, include enterprise-class Wi-Fi access points, state-of-the-art gigabit switches, and easy-to-deploy routers.

Brocade Networking Solutions
Infrastructure Products

Brocade networking solutions enable institutions at all levels of education to implement these initiatives cost-effectively, with room to scale. Here you will find a number of Education-related technology solutions, product information, and success stories of your peers.

Enterasys Secure Networks
Infrastructure Products

Enterasys offers wired and wireless network infrastructure, as well as security and management solutions to education customers worldwide. Enterasys products include all types of networking equipment ranging from routers, switches, and wireless access points and controllers.

Extreme Networks
Infrastructure Products

Extreme Networks has taken an end-to-end approach to driving costs out of BYOD, making state of the art deployments a possibility for organizations that were not able to afford one in the past. A converged data plane architecture improves your network performance.

HP Storage Systems
Infrastructure Products

Industry-leading network storage products and solutions for your enterprise.

Maximum scalability, industry-leading performance, a fully integrated suite of centralized management tools.