SCHOOL COMMITTEE QUESTIONS

General Questions:

1. List of 2006 override cuts and what has been restored since then.
   a. See attachment A
2. How many positions are benefits eligible? Amount?
   a. We included $610,380 in the budget for 46.92 FTEs. The benefit calculation includes funds for health insurance, workers compensation and unemployment Insurance for all net new FTEs.

Program Specific Questions:
1000 (School Committee)
No questions

2000 (Instruction)

3. **Update on transition program.**
   The Transition sub-committee will be having its first meeting on January 23rd. A transition consultant is being hired through a special education program improvement grant to work with the district and the subcommittee. The consultant will review current practices and assist the district in improving its transition efforts, as necessary. In addition, the district hired the New England Center for Children to conduct a study of the Intensive Learning Programs (ILP) at Diamond, Clarke and the high school to review our programs and make recommendations regarding space requirements and programmatic improvements as they relate to transition from level to level and post secondary planning. The Developmental Learning Program (DLP) is also being reviewed. A consultant with expertise regarding this type of program/population will be hired to conduct a similar review.

4. **Diamond ILP: There are two K-5 programs. Which middle school will students enter?**
   The Fiske ILP students are now transitioning to the newly created ILP at Diamond.

   The Hastings students are transitioning to the ILP program at Clarke.

   There is not sufficient space for both programs at each school. Additionally, best practice for a low incidence population suggests that an appropriate economy of scale ensures quality and effective services. If there are only 5 students per grade or fewer, it would not be programmatically or educationally sound to split the cohort. Furthermore, low numbers within a school would result in the isolation of those students.

5. **In the Budget Book, the Director of Special Education is only a 0.5 FTE in both FY13 & FY14. Do we expect to have somebody for all of FY14 and what will the FTE be?**
   The Director of Special Education is funded from two sources: Operating Budget (0.50) and the IDEA 240 Grant (0.50).

6. **Debate and Competitive Speech:**
   a. Why do we have a competitive speech line?
   This line has historically been a separate line since my arrival in 2005 as superintendent of schools. We have slowly been trying to get this program under social studies. This is a historical holdover that will eventually disappear. With the new $65,000 allocation, does the School Committee still wish to have it segregated or part of Social Studies?

   b. Are there two $65,000 allocations or one for Debate?
   There is only $65,000 under expenses.

7. **Print shop**:
   a. Does it produce revenue?
   Yes.
   b. What do we charge the town and others?
   We charge all town and affiliated partners (Town, Clubs, PTAs) cost plus overtime, if it is required. Those costs are posted as an offset to the Print Shop budget and result in some of the annual operating budget savings. Due to the growing number of images used in our schools, we need to drive more business to the Print Shop to lower printing costs out in our schools.

8. **STEAM (Science, Technology, Engineering, Arts, and Mathematics) : How will the arts be integrated? When will there be an Arts curriculum review?**
   Lexington supports ways to integrate the common core subjects into other courses. At LHS, we have been working to integrate the arts into other subjects. Here are some examples from the HS Program of Studies:

   Science Strand
   - Ceramics: Students are taught about chemical reactions when glazes and underglazes react with heat from varying temperatures in the kiln.
   - Photography: Students are taught about chemical reactions that take place with the stop bath? Fixer and Developer solutions

   English Strand
   - Most Art courses have a writing or reflection component where students are required to compose their thoughts using grammatically correct English writing standards in paragraph form.
   - Research papers and artist statements are required in Ceramics, Advanced Ceramics, Photography and Portfolio.

   Mathematics Strand
   - All courses deal with the "Golden ratio", which is a well known mathematical Greek Geometric phenomenon.
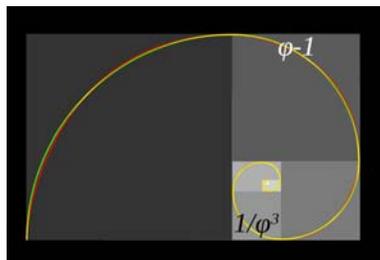
   - Art courses such as Painting, deal with mixing ratios.
   - All art courses include discussion about proportion and balance.

   History Strand
   - Most art courses have an art history component that requires students to research artists for inspiration.
   - Some art courses, such as Ceramics, designate certain projects as tied to a specific time period, such as Early Byzantine, where students would research art made during that time period and recreate it with modern aesthetic.

   Listed on the next page are all technology integrated Art courses at LHS. Web design is one of only three interdisciplinary courses offered at the high school.

6410 – Computer Animation
(Academic Expectation 7: Technology)
2 credits – semester
Level: No Level
Prerequisite: Foundations of Art
Open to students in grades 10, 11 and 12. This course will introduce students to the creative world of digital animation using the computer as a tool. Through the use of cutting edge, industry standard software and other hands-on experiences, students will learn how to produce their own unique multimedia animation productions. Students will incorporate music and/or sound effects in their animations, and may include photographs, scanned images, video clips and text, as well as other sources of imagery. The fundamentals of animation, such as storyboarding, timing, exaggeration and staging will be emphasized. Students will publish movies to CD ROM as well as the Internet.

6270 – Digital Imaging
2 credits – semester
Level: No Level
Prerequisite:
Foundations of Art
This course introduces students to the basic principles and applications of digital photography as a medium, a skill-set, and an integral part of today's digital literacy needs. Topics covered include capturing images using digital cameras, importing pictures and manipulating them in Photoshop for maximum artistic effect. Composition, camera functions and integration of typography with pictures will also be covered.

Students are required to participate in class discussions, work commemoratively and spend time working on out-of-school projects. Students must meet the criteria given for each assignment and participate in the critique of their own work, as well as the work of others. Projects may include: a magazine cover, a print ad, documentary photography, photographic collage, etc.
Point and shoot digital cameras are required. Digital SLR cameras are recommended but not required.

6311 – Digital Video Production
2 credits – semester
Level: No Level
Open to sophomores, juniors and seniors. This is a hands-on course where students learn to use digital video equipment and create video segments or mini-documentaries edited on computers. Throughout the course, student will examine the impact of news and entertainment television as well as online Videos and Podcasting.

A critical analysis of television will be used to discuss bias and point of view used in production techniques. Students will learn how to create storyboards, write scripts, edit on iMovie, use camera techniques effectively and will understand the steps involved television production. Homework for this course

should take an average of two-three hours per week. It will include video viewing and related readings. There will be two written tests on terminology.

6312 – Digital Video Production II
2 credits – semester
Level: No Level
Prerequisite: Successful completion of An Introduction to Television Production and/or permission of the instructor

Students will continue to develop and sharpen skills from Television 1. Students will learn and apply the basic structure of small studio lighting, write scripts, conduct interviews, research topics, use a cam-era effectively, refine their editing skills, produce and direct a show for television. Students will create two types of programming: Studio Production and video segments. In the Studio Production portion of the class, students will create a Magazine show to highlighting the video segments. The magazine show will be televised on LEXMedia.

6430 – Web Design
Fine Arts (Academic Expectation 7: Technology)
Math
4 credits (2 in math, 2 in fine arts) – full year course
Level: No Level
Prerequisite:
Foundations of Art
This course is for students interested in developing web-design and leadership skills. Students develop their organizational and presentation skills through a series of web-design projects ranging from the creation of a personal web page to complete site design for outside clients. Additionally, students will apply universal design strategies to promote access for everyone. Through project-based learning, students develop skills in problem solving, presentation, research and critical thinking.

Students will learn basic HTML and CSS skills, as they design web pages utilizing web standards. Throughout the course students will work in various teams to develop their sites, including interactive web sites for school and community clients. Each group will take their clients through the entire web-development process, including project plan, design mock-up, development, test and launch.

While we have not embarked upon a formal K-12 Curriculum Review in the Visual Arts, the following work has been completed or is currently underway:

- 2011-2013: Standards Based Report Card Development: Creating Standards and Indicators for K-5 Elementary Art for vertical and horizontal coherency
- 2013 Spring: K-12 Backwards Design work with Pamela Bower Basso (Tufts). Basso will work with the K-12 staff on implementing backwards design in the Art curriculum through the use of the text Rethinking Curriculum in Art.
- 2009-present: K-12 Art participates in Professional Learning Communities to collaborate, analyze student work, collect data and improve instruction.

9. **Bowman guidance – Why is there an extra 0.45 guidance counselor? Could we get those same numbers for the other 5 elementary schools?**

   Bowman is the largest K-5 school and has the same number of counselors as the other five K-5 schools. The additional 0.45 guidance counselor is needed due to the larger student population. Bridge, which is the second largest school, does not need extra guidance time based on actual student needs and the extra staffing in the PALS program. On page 10 of the budget book, there are statistics listed for Bowman for some of the services the guidance counselor delivers, number of students seen, groups, etc.

10. **What positions comprise the 1.4 FTEs at Clarke?**

    The new positions include: 1.0 mathematics teacher, 0.3 engineering teacher, and 0.1 instrumental music teacher.

11. **On page 11 of the Budget Book, there is an increase in a Diamond Social Worker. What does Clarke currently have?**

    Presently, Clarke has 1.2 social workers and Diamond has a 0.6 social worker. With a 0.4 increase at Diamond next year, the school will have 1.0 social worker.

12. **On page 13 of the Budget Book, there is a request for an increase in the Clarke math specialist. Can you let us know what there is currently at Diamond?**

    In FY 13, we added an extra mathematics teacher at Diamond in order to expand intervention services (Mega Math program). The extra 1.0 at Clarke will permit Clarke to expand its interventions services in mathematic.

13. **Clarke program improvements: Where did the need come from (teachers, administration, parents…)?**

    Small group classes exist within the DLP. The ILP students participate in the DLP small group classes. Current staffing levels do not allow for the ILP students to have their own small group classes. The population of students in both programs is changing resulting in small group instruction that is no longer appropriate for the current student populations to be combined.

    Also, in order to provide for vertical alignment of the Hastings and Clarke ILPs, given that the students at Hastings requiring this model are beginning to transition to Clarke, we need to determine if the same model or a different model is necessary at Clarke.

    The need arose from all constituents: parents, teachers and administrators.

14. **German program: Where are we?**

    As per the agreement made with the School Committee in the spring of 2012, German 1 will be offered as a course in the 2013-14 academic year in the HS Program of Studies. The video clip about the choices of World Languages offered at LHS has been redone to include an equitable amount of time for EACH language and will be shown at both Middle Schools to 8th graders with an introduction by the HS Foreign Language Department Head. Middle School administrators, guidance counselors, and Foreign Language staff will also reinforce the fact that German 1 is, in fact, being offered in the next school year, subject to a minimum enrollment for the fall.

3000 (Other school services)

15. **School Bus Transportation:**

    Diamond black fencing: Does it need extending?

    The Bus Loop as modified is too short for the number of buses that need to load at Diamond. Representatives from Diamond, the Sidewalk Committee, School Committee Liaison for TSAC, and School Transportation are reviewing design options to lengthen the loop. There is no proposal to date.

Buses: Number of buses last year and number for next year.
Last year, we had 18 buses prior to lowering the fee. Next year, we need to 25 buses due to our middle school population. The detail is in the Section 3000 under Transportation

4000 Maintenance and operations)

16. Where is the line item allocating money for custodians at PTA?
$8,400 is in the Department of Public Facilities Budget request.

17. PARCC: Impact on Technology?
The minimum operation system standards for computers, bandwidth, and the number of devices are currently being determined by the DESE.
- PARCC (Partnership for the assessment of readiness for College and Careers) is an assessment system that Massachusetts, along with 22 other states, will test English language arts and mathematics in 2014-15. Our district has responded to sets of questions by a DESE consultant organization regarding our current state of technology for test use. We feel very well equipped to meet not only the minimum specifications for 2014-15 for our technology, but also the recommended specifications that would be preferable (and required by 2016-17). For instance, minimum standards on the Macintosh platform note such items as having Mac OS 10.5 or above (all computers in the district currently have this) and have sufficient screen size and memory (again all our computers met this specification). Please see Attachment B, which are the latest set of technology guidelines from PARCC released in December 2012. You will note in guidelines that iPads will even be allowed to be used providing they have an external keyboard.
- There are a number of questions still unanswered by the state and also a number of major issues the state needs to address in rolling out the new testing procedure. We will keep the School Committee updated on state plans regarding this new test, as more information is forthcoming from the DESE.

18. Technology: 5 or 6 year replacement cycle?
   a. The district has 3,400 desktop and laptop computers. We have a five to six year replacement cycle depending on the type of equipment, which we feel is adequate.

Attachment A: 2006 Override list and restorations since 2006

In 2006, there were three ballot questions: Question1, which lost, eliminated numerous positions and led to increased fees. Question 2, which lost, did not add additional positions to the school system. Question 3, which passed, added funds to the facilities department. Since 2006, almost all of the cuts due to the lost override (Q1) have been restored except: The grade 3 through 5 Foreign Language program, and the pre-2006 high school teacher load of four classes is still five classes for most teachers. Currently, only English teachers, Health teachers, and Physics teachers (level 1 and Honors) teach four classes as part of a full-time load.

Please see the next three pages for further details.

LEXINGTON PUBLIC SCHOOLS
OVERRIDE QUESTIONS 5/3/06

QUESTION 1 - CORE BUDGET

			FTE	$
Existing Programs at Risk:				
1	PRESERVE 3-5 SPANISH PROGRAM		5.75	$385,377
2	PRESERVE SOCIAL STUDIES CURRICULUM SPECIALIST	RESTORED	1.00	$84,929
3	PRESERVE EARLY INTERVENTION SPECIALIST - CLARKE	RESTORED	0.70	$35,907
4	PRESERVE SOCIAL WORKER-CLARKE	RESTORED	0.30	$15,388
5	RETAIN GRADES 7&8 ELECTIVES - 1.2FTE AT EACH MS	RESTORED	2.40	$112,000
6	PRESERVE CLARKE & DIAMOND GENERAL SUPPLIES	RESTORED		$50,000
7	PRESERVE EDCO PD/TEACHERS AS SCHOLARS/PRIMARY SOURCE CONTR SVCS	RESTORED		$19,228
8	RETAIN K-12 TEACHING ASSISTANTS 90.5FTE	RESTORED	3.00	$66,000
9	RETAIN K-5 CURRIC SECRETARY 0.2FTE	RESTORED	0.20	$4,900
10	AVOID INCREASING LHS TEACHING LOAD 4to5 classes (SS/MATH/FL)		9.35	$416,750
11	PRESERVE GRADE 9 TEAMING (ENG/SS)	RESTORED	1.00	$45,000
12	PRESERVE MS INSTRUCTIONAL TECHNOLOGY SPECIALIST	RESTORED	1.00	$80,233
13	PRESERVE ELEM INSTRUCTIONAL TECHNOLOGY SPECIALIST	RESTORED	1.50	$105,109
14	PRESERVE HONORS LEVEL 1 & 2 SCIENCE CLASSES at 6/wk		3.40	$153,000
15	PRESERVE HS GERMAN	RESTORED	0.20	$12,613
16	PRESERVE POLICY DEBATE TRAVEL BUDGET	RESTORED		$20,000
17	PRESERVE LINCOLN/DOUGLAS TRAVEL BUDGET	RESTORED		$10,000
18	AVOID HIRING NEW TEACHERS AT LOWER STEPS	RESTORED		$94,850
19	PRESERVE UNALLOCATED ELEMENTARY TEACHERS	RESTORED	2.00	$100,000
New Critical Programs at Risk:				
20	NEW TEACHER INDUCTION PROGRAM	RESTORED		$181,600
21	NEW POSITION-EVALUATION TEAM LEADER AT LHS	RESTORED	0.50	$25,000
22	NEW POSITION SOCIAL WORKER AT LHS	RESTORED	0.60	$30,000
23	NEW POSITION UNALLOCATED ELEMENARY TEACHER	RESTORED	1.00	$50,000
24	NEW POSITION K-12 HEALTH CURRIC SPECIALISTIALIST	RESTORED	0.50	$25,000
25	NEW POSITION SECONDARY PE/HEALTH TEACHER	RESTORED	0.25	$12,500
26	NEW POSITION PRESCHOOL NURSE	RESTORED	0.50	$30,000
27	NEW POSITION 3-8 COORDINATOR OF FOREIGN LANGUAGE		1.00	$83,000
28	BENEFITS FOR NEW POSITIONS	RESTORED		$37,410
Existing Programs that Risk Fees:				
29	4/5 ELEMENTARY INSTRUMENTAL MUSIC	RESTORED		$121,500
30	JV MIDDLE SCHOOL SPORTS			$30,000
Increase Existing Fees:				
31	INCREASE PARKING, ATHLETIC AND LUNCH FEES	COMPLETED		$177,215

TOTAL BASIC BUDGET   36.15 $2,614,509

Question 2

LEXINGTON PUBLIC SCHOOLS
OVERRIDE QUESTIONS 5/3/06

COMPLETED

QUESTION 2 - NEEDS-BASED BUDGET	FTE	$
1 INSTRUCTIONAL EXPENSE-*BOOKS, EDUCATIONAL SUPPLIES* (above 3% infl)		$255,887
2 ADDITIONAL DEBATE TRAVEL EXPENSE		$15,000
3 NEW POSITIONS		
K-12 Coord Visual Arts(for a total of 0.4fte)	0.20	$16,000
Unallocated Secondary Teachers	4.00	$200,000
LHS Language Lab Aide	1.00	$20,000
4 BENEFITS FOR NEW POSITIONS		$44,720
TOTAL NEEDS-BASED BUDGET	**5.20**	**$551,607**

Question 3

LEXINGTON PUBLIC SCHOOLS
OVERRIDE QUESTION 5/3/06

APPROVED

QUESTION 3 - MAINTENANCE

		FTE	$
1	PREVENTIVE MAINTENANCE PROGRAM		$543,000
2	HVAC/ ENERGY MANAGER	1.00	$65,000
3	CUSTODIANS (2.2fte OFFSET BY CUSTODIAL OT)	3.00	$28,000
4	FACILITIES MANAGER	1.00	$55,000
5	BENEFITS FOR NEW POSITIONS		$43,000
	TOTAL MAINTENANCE	**5.00**	**$734,000**

Attachment B: PARCC Technology Guidelines

PARCC
Partnership for Assessment of
Readiness for College and Careers

TECHNOLOGY GUIDELINES FOR PARCC ASSESSMENTS
VERSION 2.0 – DECEMBER 2012

Current updates and additional information are available at:
http://www.parcconline.org/technology

The Partnership for the Assessment of Readiness for College and Careers (PARCC) is pleased to provide these technology guidelines to inform schools and districts as they make technology decisions to best meet the instructional needs of their students. The information in this document is intended to answer questions about whether existing computer inventories and new instructional hardware that schools may purchase as they implement the Common Core States Standards, will also meet PARCC's 2014-15 requirements for the online test.

Technology Guidelines for PARCC Assessments Version 2.0 refines, and therefore supersedes, the Version 1.0 document previously released in April 2012.

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 with older operating systems and lower memory capacities 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 are 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.

TECHNOLOGY GUIDANCE FOR DECISION MAKING

While the ongoing processes for assessment and technical platform design continues, *Technology Guidelines for PARCC Assessments Version 2.0* **is intended to help states and districts inform 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 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.

BANDWIDTH RECOMMENDATIONS

Minimum bandwidth requirements will be determined based on the final selection of the PARCC assessment delivery platform and the level of multimedia and technology enhanced items in the final assessment design. PARCC will provide minimum specifications by October 2013.

As schools plan for PARCC assessments concurrent with enhancing bandwidth to support instructional needs, PARCC is modeling recommended specifications on those advanced by 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).

	Minimum Specifications	Recommended Specifications
External Connection to the Internet	To be determined by October 2013	100 Kbps per student or faster
Internal School Network	To be determined by October 2013	1000 Kbps per student or faster

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.

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.

TESTING PLATFORM SOFTWARE / WEB BROWSWER REQUIREMENTS

Software and/or browser requirements will be defined by October 2013, driven by the design choices for test items and the assessment delivery platform.

DEVICE SPECIFICATIONS

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—and are able to address the security requirements described in the Security Considerations section of the Guidelines.

Desktop, Laptop, Netbook, and Thin Client[1]/VDI Computers

Operating System	Minimum Specifications[2]	Recommended Specifications
Windows	[3]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[4] or better	1024 x 768 resolution[4] or better
Input Device Requirements	Keyboard Mouse/Touchpad	Keyboard Mouse/Touchpad
	The input device must allow students to control an onscreen cursor to point, click, drag, and select an area. The input device must allow students to enter letters, numbers, and symbols and shift, tab, return, and backspace. 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 and microphones are required for all students taking the English Language Arts/Literacy Speaking and Listening Assessment. Headphones/earphones are required for students using text to speech or other auditory accommodations. Microphones are required for students using speech to text accommodations.	
Additional 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 both 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 specification without panning.	

TECHNOLOGY GUIDELINES FOR PARCC ASSESSMENTS | VERSION 2.0 – DECEMBER 2012   Page 3 of 4

Tablets

Operating System	Minimum Specifications	Recommended Specifications
Android	Android 4.0	Android 4.0 or newer
Apple iOS	iPad 2 running iOS 6	iPad 2 or newer running iOS6 or newer
Windows	[6]Windows 8	[6]Windows 8 or newer
Memory	1 GB 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[4] or better	1024 x 768 resolution[4] or better
Input Device Requirements	Keyboard Mouse/Touchpad	Keyboard Mouse/Touchpad
	Due to the onscreen space occupied by a tablet's virtual keyboard, PARCC is strongly recommending that schools be prepared to provide 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 student's 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, and backspace. Tablet touch screen interfaces can be used for student interactions with the assessments other than text input, including to control an onscreen cursor to point, click, drag, and select an area. 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 and microphones are required for all students taking the English Language Arts/Literacy Speaking and Listening Assessment. Headphones/earphones are required for students using text to speech or other auditory accommodations. Microphones are required for students using speech to text accommodations.	
Additional 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.	

TECHNOLOGY GUIDELINES FOR PARCC ASSESSMENTS | VERSION 2.0 – DECEMBER 2012   Page 4 of 4