

**Newton Schools Foundation, PTO & Newton Public Schools**  
**21<sup>st</sup> Century Classroom Initiative**  
**Interactive Tools FAQ**

**Q.** *How did this initiative start and whose initiative is this?*

A. This project originated at the teacher level and has been fully supported by the IT Department. Interactive tools are a central part of the “standard classroom configuration” outlined in the NPS state-approved Three-Year Technology Plan (2008-2011). For the past four years, middle school teachers at Bigelow, Day and Oak Hill have written NSF grants for interactive white boards and were funded to purchase these tools in the classroom. Once colleagues in the school saw the benefits of these interactive boards for student learning, they also requested funding.

Since not one funding source, NSF, PTO, or the school department has been able to purchase these tools for every instructional space, it became clear that NPS needed a more systemic approach to ensure that every instructional space had these tools. In September 2008, the IT Department joined forces with the NSF to focus on one major initiative, the 21<sup>st</sup> Century Classroom.

**Q.** *Why is it worth investing in this technology today (especially given the expense)? Is this the best way to spend our limited technology money? Why not invest instead in netbooks or laptops?*

A. A variety of tools (including 1:1 computing with mobile devices, such as netbooks) are needed to support 21<sup>st</sup> century learning. Given the expense of purchasing and replacing netbooks (~\$450 per student), the IT Department has narrowed its focus on interactive tools. Although the initial installation is costly, once the tools are purchased, software updates are provided at no charge and the life cycle of the board has been over 15 years. Most importantly, the research has proven (see following question about the Marzano research) that interactive tools not only improve student achievement but also improve lesson collaboration and sharing among faculty.

Sustaining up-to-date technology in the classroom is an expensive proposition. As noted in the Citizens Advisory Group Report, NPS has been under-funded in the area of technology. Due to fiscal constraints, NPS has been unable to implement a regular cycle of computer replacement. To address these issues of sustainability, the IT Department is recommending the purchase and maintenance of technology through multiple sources. The IT Department has been spending its operating funds on building the infrastructure to support robust technology as well as providing technical and instructional support to guarantee that the technology is well used. The proposed plan is for the NSF/PTO partnership to support interactive tools in each instructional space. Life-cycle replacement for teacher laptops and students devices is a more difficult issue to tackle. Various approaches, such as an endowment to fund technology replacement or a parent lease program, are being researched. Universities have solved this issue by asking students to bring in their own devices.

*Q. How does this address the inequity in basic technology such as laptops and desktop computers?*

Inequity around technology purchasing has been an issue for many years. NPS has used operating funds to improve the network infrastructure and purchase/replace teacher laptops, but we have relied upon PTO funding to purchase the majority of student computers. The purchase of interactive tools is the first step to focus the spending for technology on a targeted purchase to ensure that every classroom will be equipped with the full suite of interactive tools. The NSF would like to have the role of raising funds for those schools that cannot raise the amount needed to outfit their schools with these interactive tools.

*Q: What has the research shown about interactive tools?*

A: Dr. Robert Marzano has studied the use of interactive whiteboards in the classroom. His research validates that that interactive whiteboards along with student response systems have great potential as a tool to enhance pedagogical practices and to increase student achievement. The study results indicated that, in general, using interactive whiteboards was associated with a 16 percentile point gain in student achievement. Informally teachers have reported that they are able to introduce more difficult material much earlier and are more efficient, as students are more deeply engaged and have immensely improved their presentation skills.

([http://www.prometheanworld.com/upload/pdf/Final\\_Report\\_on\\_ActivClassroom\\_%282%29.pdf](http://www.prometheanworld.com/upload/pdf/Final_Report_on_ActivClassroom_%282%29.pdf))

*Q. What are some of the other advantages of using the interactive white board?*

A. The board and other interactive tools help differentiate instruction for students by supporting their different learning styles. In digital format, lessons come alive as interactive teaching tools. Teachers have the flexibility and scope for imaginative lesson planning, creating seamless links between the technology and subject material. In-class lessons and notes can automatically be saved, printed, posted to the Web or shared with other teachers.

*Q. What are some of the advantages of using the student response systems (clickers)?*

A. The student response systems offer the following advantages:

- **Measuring learning:** The clickers allow for an instant capturing of group and individual responses. Teachers can immediately see students' answers. This instant feedback allows the teacher to revisit concepts during the same class period, instead of waiting until homework is reviewed. Conversely, if the entire class is answering correctly, the teacher knows the concept is understood and can move on more quickly.
- **Engaging and increasing participation from students:** The clickers have been very advantageous for quieter students. Shy students who do not normally participate can "click" in their answers, providing immediate and personalized assessment to the teacher about this student.

*Q: What brand of interactive whiteboard with software did you chose?*

A: Since fall 2008, a group of teachers and administrators (called the Interactive White Board (IWB) forum), has been testing a number of whiteboards and student response systems throughout the system. The most important focus is to standardize software in order to facilitate lesson sharing and professional development. The IWB forum has selected SMART software as its standard. The new Newton North will be installing the ENO interactive board that is compatible with the SMART software. Either ENO or the SMART interactive board will be selected for other classrooms depending on instructional needs. The touch capability of the SMART interactive board, for example, works well for kinesthetic learners.

Q: *How do you know teachers are ready to learn these new tools?*

A: In the 2006-2007 school year, Sun Associates did a comprehensive study of instructional use of technology. The study recommended that NPS keep updating their infrastructure, and over the last few years we have improved our backbone and wireless network. The study also noted that the majority of teachers are ready and anxious to get new technology and use it to improve instruction. Sun Associates found that "teachers at all levels are for the most part confident in their basic technology skills. They know what they want to do, and in most cases, how to do it."

<http://www.newton.k12.ma.us/technology/TAC/news.html>

Q: *Are the interactive whiteboard and student response systems used all the time during a class period? Can you use this software for every subject?*

A: Teachers use the whiteboard most days and the clickers on an as needed basis. This technology is meant to enhance instruction, and these tools can be used for any subject. However, if an activity works better without the use of interactive tools, then teachers do not use them for that lesson.

Q: *Are interactive lessons part of the instructional software or do teachers create them? How time consuming is it to create these digital lessons?*

A: Each of the interactive software companies provides a variety of templates for lessons. For example, a review lesson adopted from the game "Who Wants to Be a Millionaire" was built from a template from SMART Notebook software; however the program is also very flexible for creating completely new lessons. Teachers can start with a blank slate or can pull a lesson from thousands of options on a teacher lesson-sharing website and customize the materials to fit Newton curriculum guidelines. The time it takes to create a lesson depends on the depth of the lesson and whether the teacher is creating a lesson "from scratch" or modifying one that already exists. Once the lessons are created, they can be easily shared, revisited, and altered among teachers.

Q: *How will teachers share these lessons?*

A: Teachers can share lessons with teachers all over the world via a sharing portal aligned with the SMART Notebook software. In addition, NPS will provide teachers with mechanisms for sharing within Newton (sorted by subject, grade level, text book etc.) once there are enough teachers to make this sharing feasible. In other local school systems with interactive tools in the classrooms, the best feedback regarded the tremendous amount of sharing of lessons among teachers. Teachers not only shared

within grade levels but also engaged in a lot of vertical sharing between grades, helping immensely to differentiate instruction.

*Q: Are there teachers who will be slow to adopt this?*

A: Every school has technology-resistant teachers; however a majority of teachers will eventually use this technology because of the collaboration and lesson sharing resources. Teachers will rely on team members and early adopters to help this process. Overall, most teachers are very anxious to get this technology in their classrooms.

*Q: What is your plan for training? What would a teacher do if the tools are not working properly?*

A: NPS is fortunate to have the instructional infrastructure in place to train teachers. The Instructional Technology Specialists (ITS) will provide three hours of initial training. Teachers have found that they can become familiar with the technology in a short period of time. In addition, once several teachers become proficient with the technology, training for other teachers will be provided using the train-the-trainer model. The ITS will also provide in-school “just-in-time” instructional support and on-going professional development. In addition, SMART provides a comprehensive help site with online tutorials, training, and lesson templates. The IT Department also has installed a complete set of interactive tools (interactive boards, both ENO and SMART, along with the SMART software and clickers) at the Silverman Training Lab at the Ed Center.

NPS does have the instructional and technical staff to ensure the success of this rollout. Even with the best of training, however, sometimes the equipment does not function properly. The IT Department recommends teachers have back-up plans just in case of technology malfunction. For example, a LCD projector could be used with the interactive board or digital lessons could be printed from the teacher laptop.

*Q: Will teachers who are already using interactive tools have a big job to move content over to the IWB, and re-direct teaching style?*

A: Ease of use and moving content from one platform to another was a large factor in the selection of the SMART software. NPS has lots of experience in rolling out new tools (such as teacher laptops, Google Earth, and the online course management software, Moodle). As with other new initiatives, the introduction and follow-up sessions are carefully planned and implemented. We offer a variety of training, including online sessions, face-to-face, individual and web-based tutorials. Fortunately NPS has the instructional staff to ensure that the training is comprehensive and differentiated to meet the various technology skill levels of teachers. We have spoken to other districts that have embarked on this project, and they have stressed that it takes about three years to fully incorporate the tools into classroom instruction.

*Q: How rapidly does this technology change? Will the software include updates later on?*

A: Another local school system in the area with 21<sup>st</sup> Century classrooms in every instructional space bought this technology five years ago and just recently got a software update. SMART will provide teachers with software updates at no cost for the life of the product. The whiteboards last for more than ten years.

*Q: How are you measuring student learning with this technology in the pilot at Bigelow?*

A: As noted previously, Dr. Robert Marzano has done a comprehensive study of the use of interactive tools in the classroom. The Boston College Lynch School of Education has partnered with Newton Public Schools and the Newton Schools Foundation to study the effects of technology in the classroom. This year-long study will compare student and teacher practices in the pilot classroom at Bigelow Middle School with the traditional practices in Newton, as well as to a traditional middle school setting via a comparison group. The study will measure how Newton's 21<sup>st</sup> Century Classroom pilot setting has impacted student achievement, student focus/involvement, and instruction over the course of the year-long study period.

*Q: Who is in contact with principals to keep them well informed of the ongoing process, including professional development and tech support? Overall roll out? How often do they get updates? What if the principal would prefer to put the interactive tools in a different area (i.e. the school library)?*

A: Shelley Chamberlain, the Director of IT, and Missy Costello, the Coordinator of Instructional Technology, give frequent updates at administrative and tech committee meetings. Both post updates regularly through our email conference folders for principals. Planning for professional development for next year has already begun. The IT specialists have received training from SMART and are working to gather resources to support teaching and learning. Plans for training the fifth-grade teachers that are receiving SMART Boards in the spring of 2010 are already being prepared. In addition, training will take place during Camp21 (our 4-day summer Professional Development program for teachers) as well as by grade level and/or department during early release time throughout the year. The Instructional Technology Specialists will be offering building-based professional development during additional times that are convenient for teachers.

As mentioned the NPS Technology Plan outlines the technology tools needed to support the 21<sup>st</sup> Century Classroom. We have not "micro-managed" which of the tools need to be purchased first and where they will be located. However, for this project Shelley Chamberlain and Missy Costello are working closely with principals to ensure that an equitable plan for the roll out and placement of the boards is followed. During the entire life of the project, every instructional space will have these tools. In order to ensure the most effective and efficient use of the tools, the IT Department will be rolling out the tools to cohort groups. This will make training and collaboration easier (thus all 5<sup>th</sup> grade teachers can be trained at once and start sharing lessons immediately).