Bedminster Township School

Technology Planning for Digital Learning

Technology Plan 2016-2019

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Level I. District

1.01 – Bedminster's Vision for Digital Learning

Our children are growing up in a technology driven world as new developments in technology occur every day. The Bedminster School community recognizes that teachers can be assisted more effectively with technology in instruction and students can be provided with an enhanced learning environment through the use of technology. For our students to utilize today's technological resources, we need to provide a high quality education for all students. Here in Bedminster we strive to be:

- An exemplary 21st Century learning community
- A school whose students are prepared to excel in a complex, interconnected, changing world
- A school where our teachers are adult learners who have the administrative support, and the professional obligation, to become educational leaders
- A school where our teachers will spend time sharing and collaborating through technology giving them time to work more closely with students

In order to remain current and meet our students' needs in a rapidly changing world, we will monitor, review, and assess the effectiveness of the materials and methods used. As new possibilities emerge, we will be prepared to determine what is best for our students and provide for them, as we are able, seeking input from our Educational Technology Committee.

1.02 – District Infrastructure

NJTRAx Technology Readiness completed within the 2015-2016 school year.

Date: 11/19/2015 Rating: 9

Bedminster Township School maintains a 9 rating for NJTrax Digital Readiness with one 50Mbps Internet connection and one 200Mbps Internet connection used for redundancy.

Our LAN bandwidth is 1Gbps supported by an MDF and four IDF's layered with Cisco 2960 switches. This provides 1Gbps at all network nodes. 40 Wireless Access Points are interconnected via an Extreme Wireless Controller and are used throughout the school capable of 802.11n and 802.11ac. They provide wireless connectivity throughout the Bedminster School building, able to accommodate a high density of wireless devices in all areas of the building.

64 Laserjet networked printers and 5 Xerox copiers are provided throughout the building. All printing is centralized through a Windows Print Server. The Print Server allows easier management of the printers and copiers, which will be useful with our semi-paperless goal.

95% of the classrooms are equipped with interactive whiteboards and document cameras for effective digital instruction. We have 3 full computer labs with 20 or more desktops. All ELA, Science and Social Studies classrooms have a 1:1 ratio of laptops. Music has a 1:1 ratio of iPads for students. All other classes have a small lab of laptops/desktops setup in the room.

Technology Readiness for Online Assessment

	Minimum PARCC Specs	Recommended PARCC Specs
Technology Readiness	 100% of Schools are Technology Ready	 100% of Schools are Technology Ready
Network Readiness	 100% of Schools are Network Ready	 100% of Schools are Network Ready
Device Readiness	 100% of Schools are Device Ready	 100% of Schools are Device Ready
	0 indicates data are missing or out of range 1-3 indicates Low/Not Ready 4-6 indicates Moderate/Not Ready 7-9 indicates Ready	0 indicates data are missing or out of range 1-3 indicates Low/Not Ready 4-6 indicates Moderate/Not Ready 7-9 indicates Ready

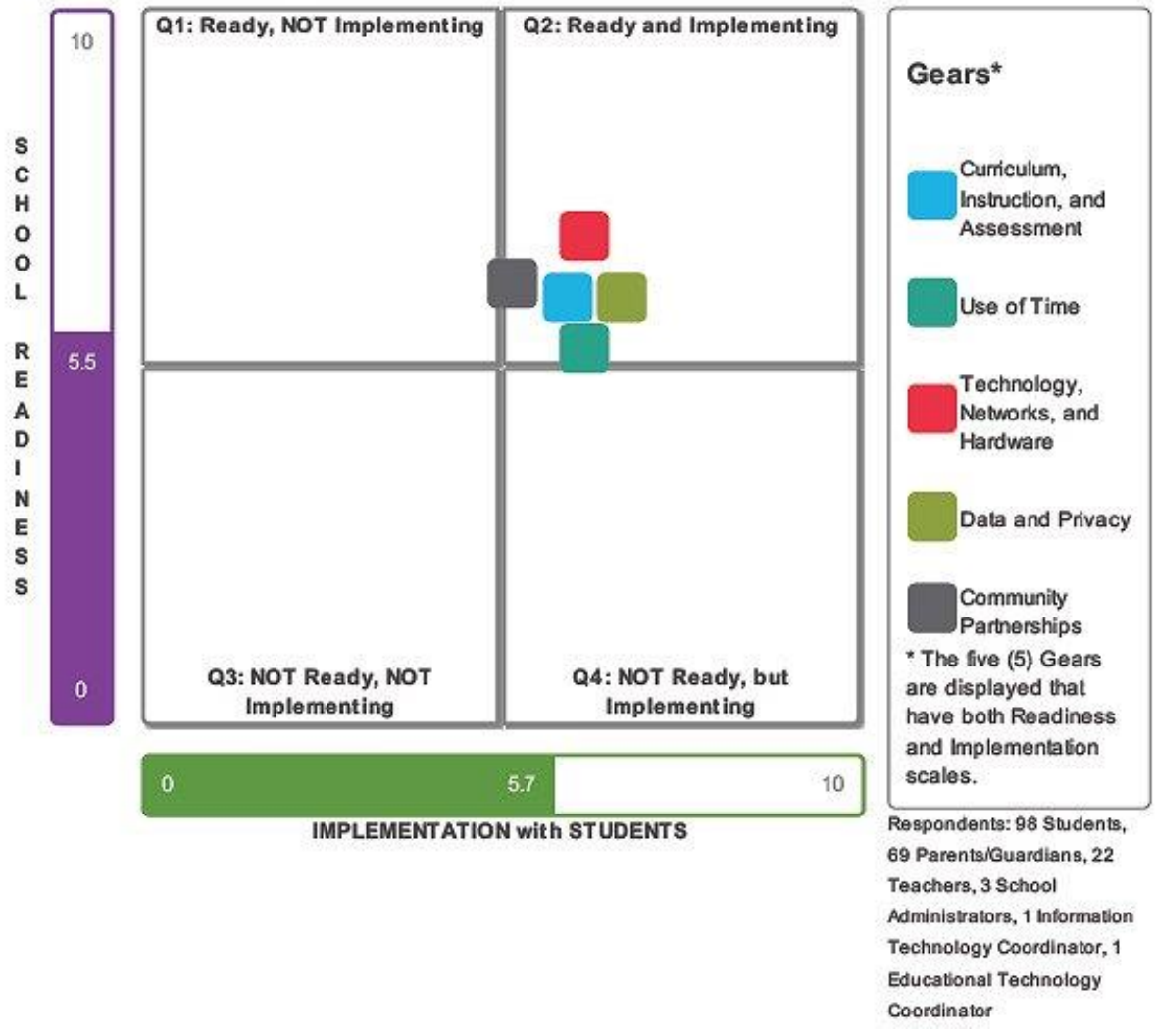
1.03 – Teaching and Learning within the District

NJTRAx Digital Learning Readiness completed within the 2015-2016 school year. Future Ready District Level Report attached.

Date: 11/19/2015 Rating: 5.5

Bedminster School scored a 5.5 out of 10 on Digital Learning Readiness and a 5.7 for Digital Implementation. We scored in Quadrant 2 of the Magic Quadrant, meaning we are in the optimum position for readiness and implementation.

Bedminster scored very high in the areas of curriculum, instruction, assessment, technology, networks, hardware, data and privacy. We scored lower in the areas of community partnership, use of time and professional learning. These areas are important to Bedminster School and are being addressed in our goals and objectives in the Technology Plan.



Technology Curriculum

The technology curriculum is closely aligned with The National Educational Technology Standards (NETS) from the International Society for Technology in Education (ISTE). Each grade level has one or more projects that align with 8.2 and STEM-focused projects. Several are outlined below.

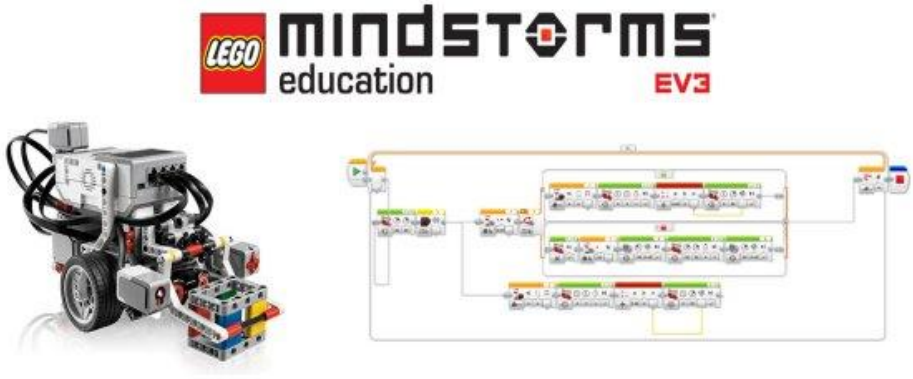
Classes focus on critical thinking, problem solving using the design process. Activities and projects include computer programming, animation, game design, career investigation and digital citizenship.

For the courses in technology and design technology, the following are some highlights:

- Focus is on the integration of technologies within all areas of the curriculum and providing Internet safety and digital citizenship skills in all grades.
- Kindergarten students learn basic skills that allow them to discuss technology related topics using content area vocabulary including internet safety, digital citizenship, hardware and software, computer programming and the design process. Kindergarten gets the opportunity to learn about wheels and axles while building with Lego simple machine kits.
- 1st grade has a fully integrated program of art and technology infused with core subjects throughout the year. First grade "graduates" to logging on to the school network with their own usernames and passwords. Content area vocabulary is reviewed and reinforced throughout the year. Students use art and technology to supplement visualization, fiction and nonfiction writing skills. Students also learn how to access a database and do research on an animal with neutral coloring, and we conducted Skype sessions with a sea turtle expert. This is the first year they participate in the Hour of Code, learning some basic computer programming concepts. They continue the Hour of Code through 8th grade.
- 2nd grade tech curriculum is aligned with activities and topics in core subject areas. Emphasis is placed on exposure to Microsoft Office applications: Excel, Word and PowerPoint. Students learn how to use these programs by doing projects with language arts, math, science, and social studies topics. Students continue to develop their research skills. We also introduced a new keyboarding program this year starting with second grade.
- 3rd grade gets their Google Apps accounts activated and much of the year is spent learning how to work in Docs and Slides. Students also use Google Classroom to submit assigned work. Toward the end of the year, 3rd grade gets to work with the Lego WeDo robotic kits to build a variety of simple machines that can be programmed to move.
- 4^{th} grade technology course has students using additional features in Google Apps for Education and Google Classroom. Students also work on creating digital story projects, beginning coding activities and work with Raspberry Pi kits. Students work on a career project presentation and also will begin exploring the use of programmable robot balls. Students explore design, resource, products made, fixing, repairing and how people react to these products.

- The 5th grade Technology course has students working on taking apart/putting back together computer desktops. Students also build and program computers using Raspberry Pi, monitors and other devices. Students also learn podcasting skills, email and the full suite of Google Apps for Education applications through a project-based approach.
- In separate 5th grade Applied Technology, classes incorporate math through measurement and geometry, while creating original pieces of art on the computer. Students also make a kaleidoscope and learn about the science concepts that make the kaleidoscope work.
- The 6th grade Technology course incorporates building effective presentation skills, advanced keyboarding strategies, spreadsheets/forms and Robotics I. Topics covered include engineering, building the robots, programming, pseudo-code and developing real-life understanding of mathematical concepts Students learn how to complete mathematic, engineering and computing skills. Specific focus is on understanding proportional reasoning concepts through the use of a differentiated educational approach that has been researched and proven to be effective in developing these mathematical skills as well as increasing student intrinsic motivation to learn.
- 6th grade Applied Technology classes also incorporate math through measurement, proportion and ratios, in addition to using spreadsheets for budgeting. Time permitting, they translate data from their mechanical drawings and floorplans to create a scale model of a room they have designed.
- The 7th grade Technology course incorporates Robotics II with EV3 Robots and LEGO Mindstorms Programming. Robotics and Virtual Robot Brick developed for grade 7 and is taught in sequence from the material in Robotics I taught in grade 6 of the Technology course. Topics covered include engineering, building the robots, programming, pseudo-code and developing real-life understanding of mathematical concepts. Emphasis moves towards the use of sensors with robotics and how they interact with the physical environment. Students also will work on programming a Roomba to create independent projects. Students continue to work on keyboarding, coding through Google Earth navigation program, SNAP programming, Internet search skills, evaluating and creating websites, and advanced spreadsheet concepts related to financial tasks/careers and events that warrant the need for insurance.
- 7th grade Design Technology students build a pinhole camera to learn about light rays and how the eye works. This activity extends and supports their instruction in digital photography.
- The 8th grade Technology course has students coding through a variety of programming activities including code.org, and the Beauty and Joy of Computing, a program designed to spark student's interest in programming. Students create apps for mobile devices through MIT's App Inventor program and develop a prototype for an app to solve a real-life problem. Students use a variety of technology tools, including spreadsheets, presentations to complete a real-life stock market project. Students explore careers related to technology and create databases from scratch and create queries, reports and analysis of them.

- 8th grade Design Technology classes have an overarching theme of problem solving, logic and computational thinking. Activities include programming, logic puzzles, building a 3D puzzle and career investigations.



MIT App Inventor

1.04 – Transformational Budgeting

Our funding sources for recurring services, anticipated purchases, and professional learning are identified year to year through locally generated revenue as well as allowable state and federal grants.

We create our budget with zero-based budgeting. We start the budget process from scratch or at zero and then arrive at the final figure instead of using the previous year and adding percentages. Zero-based budgeting is used because it is more accurate and better represents Bedminster's needs for the year

Our teachers and staff are trained on the latest technical equipment including interactive whiteboards and personal computers to ensure all digital technology is being integrated appropriately.

We have two Technology Integration Specialists that visit all K-8 classes to assist teachers and students with the use of technology.

1.05 – Overview of Schools

School	Grade Span	NJTRAx PARCC Readiness		NJTRAx Digital Learning Readiness	
		Date	Rating	Date	Rating
Bedminster Township School	K - 8	11/19/2015	9	06/01/2016	5.5

Level II. School

2.01 – Technology Plan

Goal 1: Bedminster School will add more technology based professional development programs to help teachers integrate technology into teaching and learning.

Objective(s): Teachers who attend frequent trainings will be able to enhance their curricula and instructional practices by using technology in their instruction and by engaging their students in learning activities that involve the use of technology.

Action Plan for Goal 1			
Activities	Individual(s) Responsible	Resources	Timeline
Quarterly Surveys will be sent to teachers to gather information on technology usage and needs	Technology Manager, Director of Instruction	Google Apps	09/2016 – 06/2019
Professional Development sessions will be created and scheduled throughout the school year(Genesis, Discovery Streaming, Microsoft)	Technology Manager, Director of Instruction, Teachers	Various vendors will be polled to present lessons on products at no cost	09/2016 – 06/2019
Links to online webinars will be shared with teachers as a repository for future access	Technology Manager	School Website, Genesis, Discovery Streaming	09/2016 – 06/2019

Goal 2: Bedminster School will become a semi-paperless School District while first limiting the use of paper through other creative methods

Objective(s): To decrease paper usage while helping the staff find other ways to use technology to replace the need for paper

Action Plan for Goal 2			
Activities	Individual(s) Responsible	Resources	Timeline
Limit paper usage on copiers & printers with copier codes and page limits on printers	Technology Manager	Xerox Managed Printing Service	07/2016 – 09/2018
Increase use of Google Apps like Google Classroom to reduce printed memos and assignments Training sessions for teachers to become more familiar with Google Apps for Education suite and uploading files for storage purposes.	Technology Committee	Google Webinars, Professional Development on Google Apps at no cost	09/2016 – 06/2019

Goal 3: Bedminster School students, teachers and staff will use digital technology to communicate effectively with the global community.

Objective(s): Increase the community's awareness of Bedminster School's place in the community.

Action Plan for Goal 3			
Activities	Individual(s) Responsible	Resources	Timeline
The Staff will use social media like Facebook, Twitter, and Google Drive to keep the community up to date with School Events and Activities.	Administration, Staff	Facebook, Twitter, School Website	9/2016 – 6/2019
All Bedminster Staff will be committed to keeping their online webpages up to date and current.	All Staff	School Website (BlackBoard)	9/2016 – 6/2019
The new Student Information System, Genesis, will be cloud-based to allow more streamlined access for parents and teachers.	Technology Manager	Genesis	9/2016 – 6/2019

Goal 4: Bedminster School will add more STEM Infused Projects to current courses

Objective(s): As stated in our School Vision, we strive to be an exemplary 21st Century learning community whose students are prepared to excel in a complex, interconnected, changing world.

Action Plan for Goal 4			
Activities	Individual(s) Responsible	Resources	Timeline
Further school-wide initiative related to school-wide computer coding development completed in technology course.	Technology Manager, Technology Teachers, Director of Instruction		9/2016 – 6/2019
Exploration and implementation of 3D Printing technology for students in middle school.	Technology Manager, Technology Teachers, Director of Instruction	3D Printer demos with Zortrax M200 3D Printer Learning Kit	6/2016 – 6/2019
IRobot Corporation Create 2 Programmable Roombas. Student-led constructionist projects for this in technology course and/or robotics club.	Technology Manager, Technology Teachers, Director of Instruction	iRobot STEM Manager Roomba	6/2016 – 6/2019
Elementary LEGO Club & LEGO Robotics Club	Technology Manager, Technology Teachers	Grants	9/2016 – 6/2019

Exploration of a Flight Simulator for learning science and math concepts.	Technology Manager, Technology Teachers	Created through dollars raised. Students and teachers build the kit together, possibly with collaboration and help from outside community.	9/2016 – 6/2019
Exploration of partnering with a makerspace community and having students participate in a Maker-Faire and/or visiting maker spaces.	Technology Teachers		9/2016 – 6/2019
Exploration of the Sphero Education Pack for students to collaborate and program a robotic ball.	Technology Teachers	4th and 5th grade. Sphero Education Pack	9/2016 – 6/2019
Expanding robotics club to a second group of students who are in 4th through 6th grade and explore the VEX Robotics along with further development with EV3 Robotics.	Technology, Mathematics and Science Teachers	Partnership with local robotics clubs has begun.	9/2016 – 6/2019
Further school-wide initiative related to development of higher-order computer coding development completed in technology course.	Technology Teachers	Code.org, the Beauty and Joy of Computing training from Cal Berkeley (no cost to district).	9/2016 – 6/2019
Integrated use of technology curriculum units with core-content subject area lessons, when appropriate.	Technology Teachers		9/2016 – 6/2019
Sphero Education and Create 2 Programmable Robots for using in technology courses, robotics and/or computer clubs.	Technology Teachers and Club Advisors	iRobot STEM manager and products.	9/2016-6/2019

Professional Learning Plan		
Goal #	Initial Activities	Follow-Up Activities
1	Teacher-led professional development to foster technology integration into curricula areas.	Ongoing support by technology teachers/facilitators throughout the school year to foster technology integration on an individual basis.
2	Continued use of storage and sharing of documents via Google Drive and similar applications	Expansion into Office 365 for Education with Google Apps for Education
3	Continued use of school sites, blogs, wikis and similar media to communicate with parents and community members.	Surveys to gauge efficacy.
4	Continued development of the LEGO and robotics clubs to support STEM learning. In addition, specific grade level projects that foster STEM in grades, which include programming development, engineering, prototypes and similar activities. Community and local partnerships with robotics groups in the area to foster learning for teachers and students.	Continued online and community partnerships.

Budget			
Goal #	Activity	Funding Source (Federal/State/Private/District)	Amount
1	Begin using Professional Development in Microsoft, Google Apps and other applications that foster technology integration within the curriculum.	District	$3,000
2	Conitnue Xerox Managed Printing Services and Copier Maintenance Contract.	District	$4100/month
3	Genesis – New Student Information System Continued widespread use of collaborative technologies, such as Google Apps for Education.	District	$11,000 first year, $7850 annually after first year
3	Update Teacher Websites through Schoolwires or similar applications.	District	$4800/year
3	Use School Facebook and Twitter Accounts	District	Free
4	3D Printing Zortrax M200 3D Printer Learning Kit - 3D Printing Starter Sets for Schools or similar 3D Printer Zortrax M200 or similar 3D Printer Zortrax Z-ABS Filament 8-Pack Zortrax M200 Side Cover Set Includes a 3D printer and recommend accessories to set up and optimize 3D printing in your classroom This 3D printer learning kit from Media Supply includes:	Percentage paid by PTO Grant, District and other potential grant sources	$2000

4	VEX Robotics and/or additional LEGO robotics accessories, including motors and replacement parts. Practice kits for annual projects form FIRST Robotics.	Percentage paid by PTO Grant, District and other potential grant sources	$4000
4	Sphero Robotics and turbo cover packs. Sphero.com	Percentage paid by PTO Grant, District and other potential grant sources	$1500 as of 6/2016
4	Roombas Create 2 (programmable robot) 4x at $199	Percentage paid by PTO Grant, District and other potential grant sources	$796
4	Flight Simulator and Dedicated Computer Parts without computer include computer flight simulator program ($50), NVidia GPU 900 or similar ($500), Quad Core PC or higher, input devices input devices ($100), such as CH Products Flight Simulator Yoke ($130) and Large 27 inches or more computer screen ($220.00)	Percentage paid by PTO Grant, District and other potential grant sources	$1,000 without computer.

BUDGET FOR ACTION PLAN ITEMS	
Line Item - Activity	**Yearly Cost**
SIS - Genesis	$9,245
School Website - BlackBoard	$4,931
Discovery Education Streaming	$1,600
Xerox MPS	$50,000
Tech Professional Development	$3,000
3D Printing	Grants
LEGO	Grants
iRoomba	Grants
Flight Simulator	Grants
Spero Education Pack	Grants

Stakeholder Assurance

I agree to the contents in this educational plan, and the assurance that I will be involved in the implementation of this Technology Plan for Digital Learning. Involvement in the implementation of this Plan may include: reviewing the progress of meeting the goals and objectives, being responsible for completing one or more activities in the action plan, participating in the revisions of the plan.

Stakeholder Name	Stakeholder Title	Stakeholder Signature
Corby Swan	Principal	
Natalee Bartlett	Director of Instruction	
Basil Scaperdas	Parent	
James Puglia	Teacher	
Andrea Burke	Teacher	
Kevin Pickett	Technology Manager	

Technology Plan components CHECKLIST

This form may be used to ensure all components are addressed in the submitted document for review.

District:		County: Somerset		
NJTRAx PARCC Technology Readiness Rating	9	**NJTRAx Digital Learning Readiness Rating**	5.5	

- If the Future Ready District Level Report was generated within the 2015-2016 school year include a copy of the district report with the Plan submission
- If the NJTRAx Digital Learning Surveys summary report was generated, include a copy for all identified schools

STEP	Component	Y(es)	N(o)	Page(s)
1	District Vision	Y		3
2	NJTRAx Technology Readiness Date & Rating (District & Schools)	Y		3-4
3	NJTRAx Digital Learning Readiness Date & Rating (District & Schools)	Y		3-4
4	School-Based Goals, Strategies, Objectives, and Indicators for each school	Y		10-14
5	Reflection & Adjustment plan Included		N	
6	School-Based Action Plan with infusion of technology (clearly written)	Y		10-14
7	School-Based Reflection & Adjustment for each school		N	
8	School-Based Budget included to support Action Plan Activities for each school	Y		18