



# TechYES Assessment

This document is an overview of the assessment designed for the TechYES - Student Technology Literacy Certification program from Generation YES.

## Project-based Technology Literacy

Students need to be technology literate in order to become effective 21st century learners. The ability to ***understand and use*** technology in school and other learning environments is a critical skill. Creating opportunities for students to construct two technology-based projects is the heart of TechYES. Projects are authentic expressions of student interest and talent and can be integrated into existing subject areas and classes. When matched with a research-based, valid assessment methodology, this model provides teachers and students with 21st century skills and valuable lifelong learning experiences.

*“To achieve technology literacy, learners must observe specific examples to illuminate these concepts, and they must try their own hand at constructing or modifying examples in laboratory and real-world settings.” ISTE<sup>1</sup>*

## Research Driven Assessment

There is a persistent myth that only paper or computer-based multiple choice assessments can produce valid quantitative data. However, there is abundant research showing that assessing authentic projects is a better indicator of actual student proficiency than standardized, one-size-fits-all tests. Generation YES founder Dr. Dennis Harper is a pioneer in the use of technology to enhance education, and expert in educational statistics. During the development of this model, Dr. Harper has worked with such experts in project based learning as Robert Tinker, Elliott Soloway<sup>2</sup>, Gary Stager, David Moursund<sup>3</sup> and Henry Becker<sup>4</sup> to develop the TechYES assessment strategies. Utilizing this extensive expertise and numerous external evaluations, Generation YES continues to develop friendly training guides, resource tools, rubrics, and scoring manuals for generating valid measures of technology proficiency based on a student’s TechYES projects.

In his seminal review of the research on project-based learning, John Thomas<sup>5</sup> concludes that projects are central and not peripheral to the curriculum. The projects are the curriculum. The TechYES projects allow students to learn concepts central to technology throughout the project process. The TechYES projects “drive” students to encounter (and struggle with) the central concepts and principles of their classwork and technology.

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<sup>1</sup> Technology Literacy for the Nation and for Its Citizens (1995) - [ISTE Whitepaper](#)

<sup>2</sup> Moursund, D. (1999). Project-based learning using information technology. Eugene, OR: International Society for Technology in Education.

<sup>3</sup> Becker, H. J., Wong, Y. T., & Ravitz, J. L. (1999). Computer use and pedagogy in Co-NECT schools, A comparative study. Teaching, learning, and computing: 1998 National Survey Special Report. Irvine, CA: University of California.

<sup>4</sup> Soloway, E., Krajcik, J. S., Blumenfeld, P. C., Marx, R. W., Bass, K. M., Fredricks, J. (1998). Inquiry in project-based science classrooms: Initial attempts by middle school students. *The Journal of the Learning Sciences*, 7, 313-350.

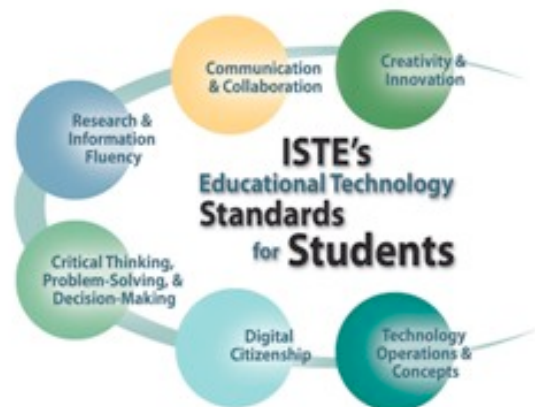
<sup>5</sup> Thomas, J.W. (2000), A review of research on project-based learning, Autodesk Foundation.

The most recent large-scale external evaluation<sup>6</sup> of TechYES involved 25 New York districts where more than 6,000 projects were completed.

*“On the New York State achievement scores, most schools improved with more students achieving level 3 and level 4 (passing) from 2007 to 2009. In addition, when statistically comparing 2009 certified students’ math test scores with the 2008 certified students’ math test scores, significant differences were noted. This finding suggests that the certification process has created an environment of vigorous learning and that the TechYES initiative evokes an enthusiasm in learning that becomes cumulative over time.”*

## Assessment Methodology Aligned to ISTE NETS • S

When a student completes a TechYES project, he or she must have both a trained student peer mentor and adult advisor assess the project. Students present their projects and answer questions from the peer mentor and advisor, who record their answers using the TechYES online tools. Based on the student’s responses, a proficiency level (below, meets, or exceeds standard) for all 14 TechYES project criteria is automatically calculated from the advisor’s assessment. These proficiency levels are aligned to the ISTE NETS • S standards and performance indicators using valid and proven algorithms.



The total TechYES Proficiency Score is determined by adding the proficiency score for each of the six ISTE NETS • S standards. In turn, each NETS • S standard’s proficiency score is determined by adding the proficiency scores of each of the standard’s four performance indicators. Students whose combined proficiency score for both projects exceeds 600 receive TechYES certification.

Technology literacy is determined by the assessment of real-world, cross curricular projects. TechYES gives schools, districts, and states confidence that their students are doing authentic work that shows technology literacy, not wasting time on out-of-context testing.

### TechYES Project Criteria

TechYES students, peer mentors and advisors receive extensive preparation to ensure they can evaluate projects based on these criteria. The project:

1. Works properly
2. Is clear and informative
3. Is attractive
4. Is easy to use
5. Is complete
6. Achieves the student’s goals
7. Meets the needs of the audience
8. Uses technology to gather
9. Uses technology to organize
10. Uses technology to construct
11. Uses technology to share
12. Is creative
13. Meets Internet safety and ethics guidelines
14. Effectively uses and correctly attributes resources

<sup>6</sup> Chapin, D., Research by Design, Final Evaluation Report of the HFM BOCES Title II(D) grant, Jan. 2010

# TECHYES REPORTS

## Assessment and Management

TechYES provides a suite of reports and tools for the classroom teacher and student. It also offers administrative tools and reports for school, district, groups such as regional service centers, and states. These online reports are generated in real-time and offer date selection, interactive sorting, and hyperlinks to drill down for additional data and the actual student projects.

### TechYES report types

- **Summary Reports** - Consolidates all data into “one-glance” for quick analysis
- **Achievement Reports** - Shows technology literacy proficiency to standards and proficiency indicators
- **Project Reports** - Shows student technology literacy projects
- **Dashboards** - Real-time dashboards and reports give teachers and students instant data and feedback for formative assessment and project development.

### TechYES reports for all user levels

TechYES provides reports for four levels of users: Student, Teacher/School, Groups, and State. Groups can be dynamically defined as any group of schools, such as a district, BOCES, or grant consortium. At each level, users can see their own reports as well as any reports at levels below.

#### 1. Student Level: TechYES Students

- **Student Summary Report** - Each student can see their own proficiency scores and progress towards TechYES Certification.
- **Student Dashboard** - Track and manage project progress

#### 2. School Level: TechYES Teachers and School Administrators

- **School Achievement Report** - Student proficiency scores with comparison to district/region/state/national data and detailed scores for performance indicators.
- **Student Summary Report** - Data for all students in a school
- **Teacher/Advisor Dashboard** - Graphical class management interface. Students can be sorted into classes or groups, archived, and managed. Clicking on student name generates an instant student achievement report. Clicking on project titles reveals project descriptions and links to projects.
- **Technology Literacy Project Report** - All project details in a single report plus links to actual projects.

#### 3. Group Level: Group Administrators

A group can be defined as any group of schools, such as a district, BOCES, RIC, grant consortium, or county.

- **Group Achievement Report** - Group-wide student proficiency scores with comparison to district/region/state/national data.
- **School Summary Report** - School to school comparison of all data.

#### 4. State Level: State Officials

- **State Achievement Report** - State-wide student proficiency scores with comparison to district/region/state/national data.
- **District Summary Report** - District to district comparison
- **BOCES Summary Report** - BOCES to BOCES comparison

The following pages show a selection of these reports at various levels.

# TECHYES SUMMARY REPORTS

Summary reports consolidate the most important achievement and project data into one interactive, easy-to-read report. School summaries show student data, district summaries show school data, and the state summary shows district or BOCES data.

Reports feature:

- Links to technology literacy proficiency charts
- Links to student project evaluation and work
- Every item sortable and searchable
- Online, printed, PDF, and delimited data formats

## Sample School Summary Report

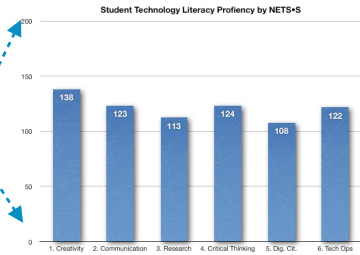
### Longfellow Middle School - Student Technology Literacy Summary Report

CLASS OVERVIEW						
<b>August 1, 2008 to April 15, 2009</b>	Students	Planning Forms	Project 1 Complete	Project 2 Complete	Pending Certificates	Certified Students
<b>School Total</b>	12	16	9	7	2	5
<b>National Average</b>	87.40	22.00	7.27	6.27	1.87	4.11

**Proficiency**  
740

Click any student name to reveal individual student data

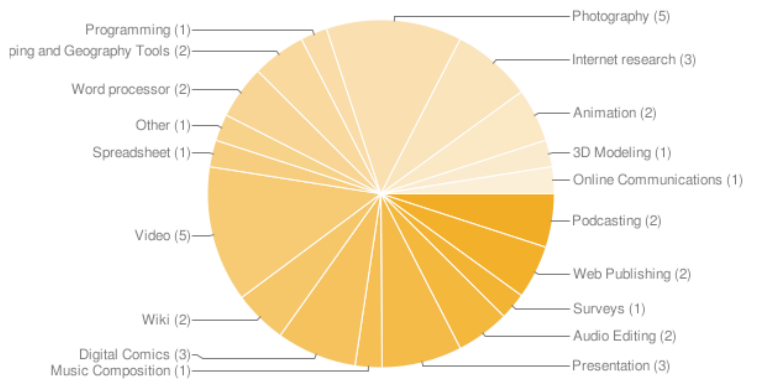
Name	District ID #	Class	Planning Forms	Project 1 Complete	Project 2 Complete	TechYES Certified	Date Certified	Proficiency Level
Arthur Albert	A123	Club	2	Yes	Yes	0007859-09	5/14/2009	655
Franklin Williams	A524	Club	0	No	No	No		0
Richard Rock	A128	Period 4	2	Yes	Yes	0007859-11	5/14/2009	780
Jerry Rose	A147	Club	2	Yes	Yes	Pending		600
Jon Smith	A483	Period 4	1	No	No	No		0
Josephine Trenton	A479	Club	1	Yes	No	No		300
Joshua Planner	A125	Club	2	Yes	No	No		340
Lisa Smith	A846	Period 4	2	Yes	Yes	0007859-13	5/14/2009	1,010
Melissa Hay	A403	Period 4	2	Yes	Yes	Pending		640
Rachel Lee	A512	Period 4	0	No	No	No		0
Bob Woods	A623	Club	2	Yes	Yes	0007859-14	5/14/2009	630
Jennifer Dunn	A129	Period 4	0	Yes	Yes	0007859-15	5/14/2009	610
<b>School Average</b>			<b>1.33</b>	<b>75.0%</b>	<b>58.3%</b>	<b>41.7%</b>		<b>58.3%</b>



### PROJECT TECHNOLOGY USED

Name	3DM	ANI	AUD	COM	GOO	INT	MUS	ONL	OTH	PHO	POD	PRE	PRO	SS	VID	WEB	WP
Arthur Albert	1		2		2	1	1					1					
Franklin Williams																	
Richard Rock		1				1						2				1	
Jerry Rose						2	2				2		1		1	1	
Jon Smith																	
Josephine Trenton																	
Joshua Planner																	
Lisa Smith				1													
Melissa Hay	1	1			2												
Rachel Lee																	
Bob Woods																	
Jennifer Dunn			2	1													
<b>Class Total</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>4</b>												
<b>% Total Projects</b>	<b>13%</b>	<b>13%</b>	<b>25%</b>	<b>13%</b>	<b>25%</b>												

### Projects by Technology



3DM-3D MODELING, ANI-ANIMATION, AUD-AUDIO EDITING, COM-COMPOSITION, GOO-GRAPHICS, INT-INTERNET RESEARCH, MUS-MUSIC COMPOSITION, ONL-ONLINE COMMUNICATIONS, OTH-OTHER, PHO-PHOTOGRAPHY, POD-PODCASTING, PRE-PRESENTATION, PRO-PROGRAMMING, SS-SPREADSHEET, VID-VIDEO, WEB-WEBSITE, WP-WORD PROC.

## Sample State Summary Report

A sample report for the state of New York shows all district data and comparisons to national data. Clicking on any district name will drill down to the district summary report.

### NEW YORK STATE TECHNOLOGY LITERACY REPORT

to

<b>July 1, 2009 to June 30, 2010</b>	Middle Schools	Students	TechYES Certified Students	Avg. NY District Proficiency*	National District Proficiency*
<b>State Total</b>	742	105,680	3,898	688	640

State Overview	TechYES Students	Project 1 Complete	Project 2 Complete	TechYES Certified
<b>State Total</b>	<b>105,680</b>	<b>19,640</b>	<b>3,898</b>	<b>3,898</b>
<b>Percent of Total</b>		<b>19%</b>	<b>4%</b>	<b>4%</b>
<b>National Comparison</b>		<b>46%</b>	<b>6%</b>	<b>6%</b>
<b>District Average</b>	<b>368</b>	<b>269</b>	<b>87</b>	<b>87</b>

District Name	Middle Schools	TechYES Students	Project 1 Complete	Project 2 Complete	TechYES Certified	Percent Certified	Avg. School Proficiency Score*
<b>Broadalbin-Perth CSD</b>	1	33	28	0	0	0%	-
<b>Canajoharie CS</b>	1	25	17	2	2	8%	627
<b>Fonda-Fultonville CSD</b>	1	122	105	12	12	10%	712
<b>Galway CSD</b>	1	106	13	0	0	0%	-
<b>Gloversville SD</b>	1	168	151	52	52	31%	731
<b>Greater Johnstown</b>	1	109	101	17	17	16%	703
<b>Lake Pleasant CSD</b>	1	15	15	15	15	100%	668
<b>Clty School District of Albany</b>	3	976	316	82	82	8%	652
<b>Granville CSD</b>	1	87	87	16	16	18%	751
<b>Bath CSD</b>	1	149	128	31	31	21%	687
<b>Queensbury UFSD</b>	1	293	39	2	2	1%	725
<b>Bethlehem CSD</b>	1	415	401	113	113	27%	774
<b>Wheelerville UFSD</b>	1	57	56	13	13	23%	703

\* Average score for certified students only      page 1 of 2

## Sample Student Summary Report

### INDIVIDUAL STUDENT REPORT - CREATED 10/08/09

Name	Susan Giorgiana
School	Bookman Middle School
Class	Per. 1 Tech Elective

**TechYES Certified**

Certified

#### TechYES Projects

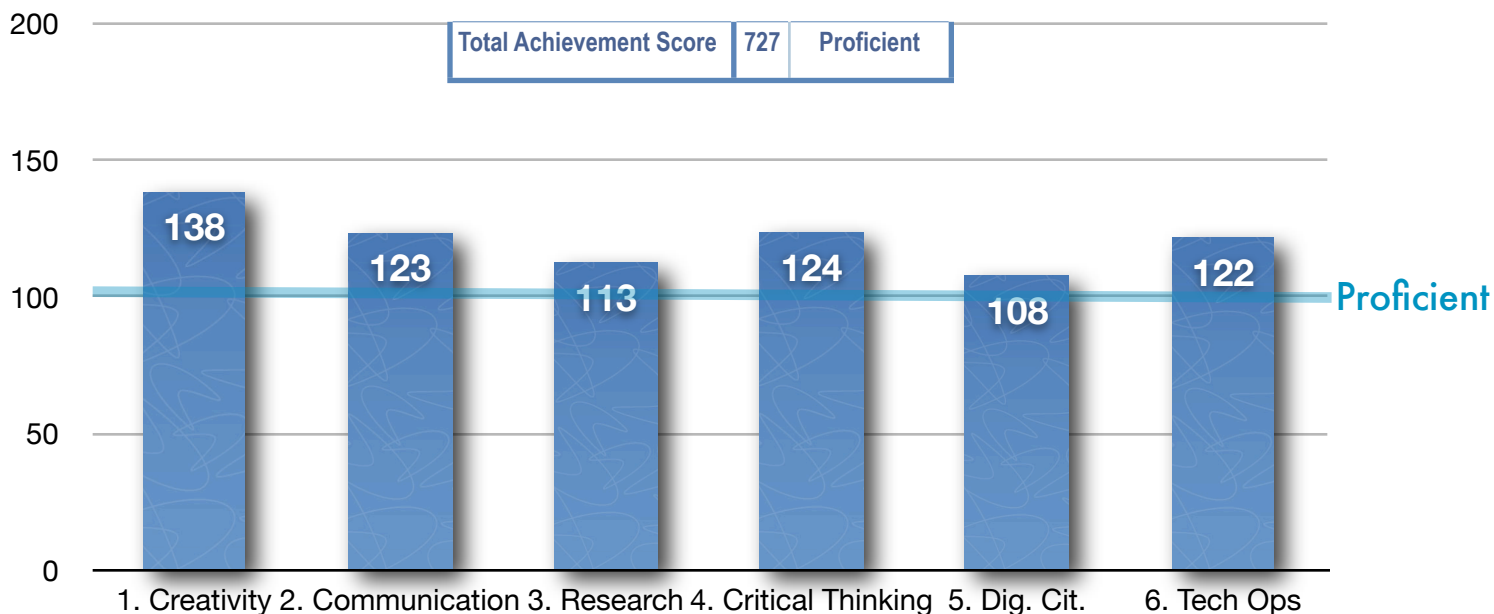
	Title	Project Status	Link
<b>Project 1</b>	Rainforest Simulation	Approved	<a href="#">View Project</a>
<b>Project 2</b>	Civil War Website	Approved	<a href="#">View Project</a>

#### Technology Literacy Achievement Score

<b>Project 1</b>	374	Proficient
<b>Project 2</b>	353	Proficient
<b>Total Achievement Score</b>	<b>727</b>	<b>Proficient</b>

<b>Curriculum Integration</b>	Social Studies, Math, Science
<b>Technologies Used</b>	3D modeling, animation, presentation, simulation, web development

### Student Technology Literacy Proficiency by NETS•S



# TECHYES ACHIEVEMENT REPORTS

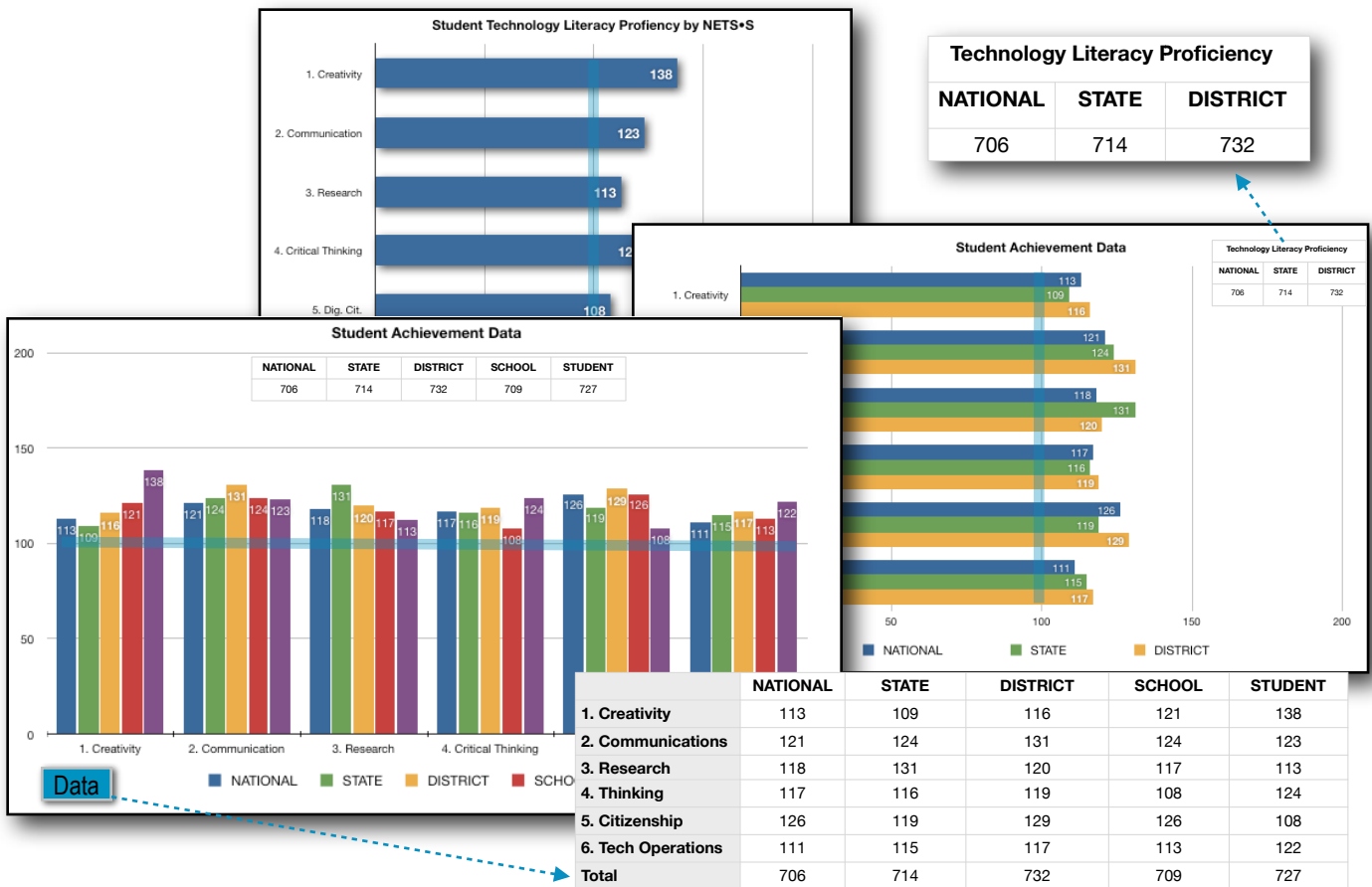
Achievement reports show technology literacy proficiency with comparison to national/ state/district/school data on ISTE NETS•S Standards for Students. These reports include the ability to drill down to ISTE NETS•S performance indicator levels.

Every TechYES project is assessed using a simple rubric that correlates to the ISTE NETS•S Standards for Students. Each project is rated using 14 criteria correlated to the ISTE NETS•S performance indicators. These weighted results are normalized to a scale of 0-100 for each of the six standards, for a total scale of 0-1200 (six standards, two required projects.) Proficiency is defined as reaching 600 total points.

All data can be downloaded as delimited data for any time period, or instantly generated reports can be viewed or printed with tables and graphs for all proficiency data.

## Targeted Achievement Reports for all User Levels

Achievement reports can be generated for students, districts, regional or statewide data.



## Sample School Achievement Report

The sample School Achievement report shown on the next page can be seen by teachers and administrators, plus any other system users at a higher level. It shows the school achievement data by standard, comparisons to other schools, and features interactive tables for sorting and drilling down to the performance indicator level.

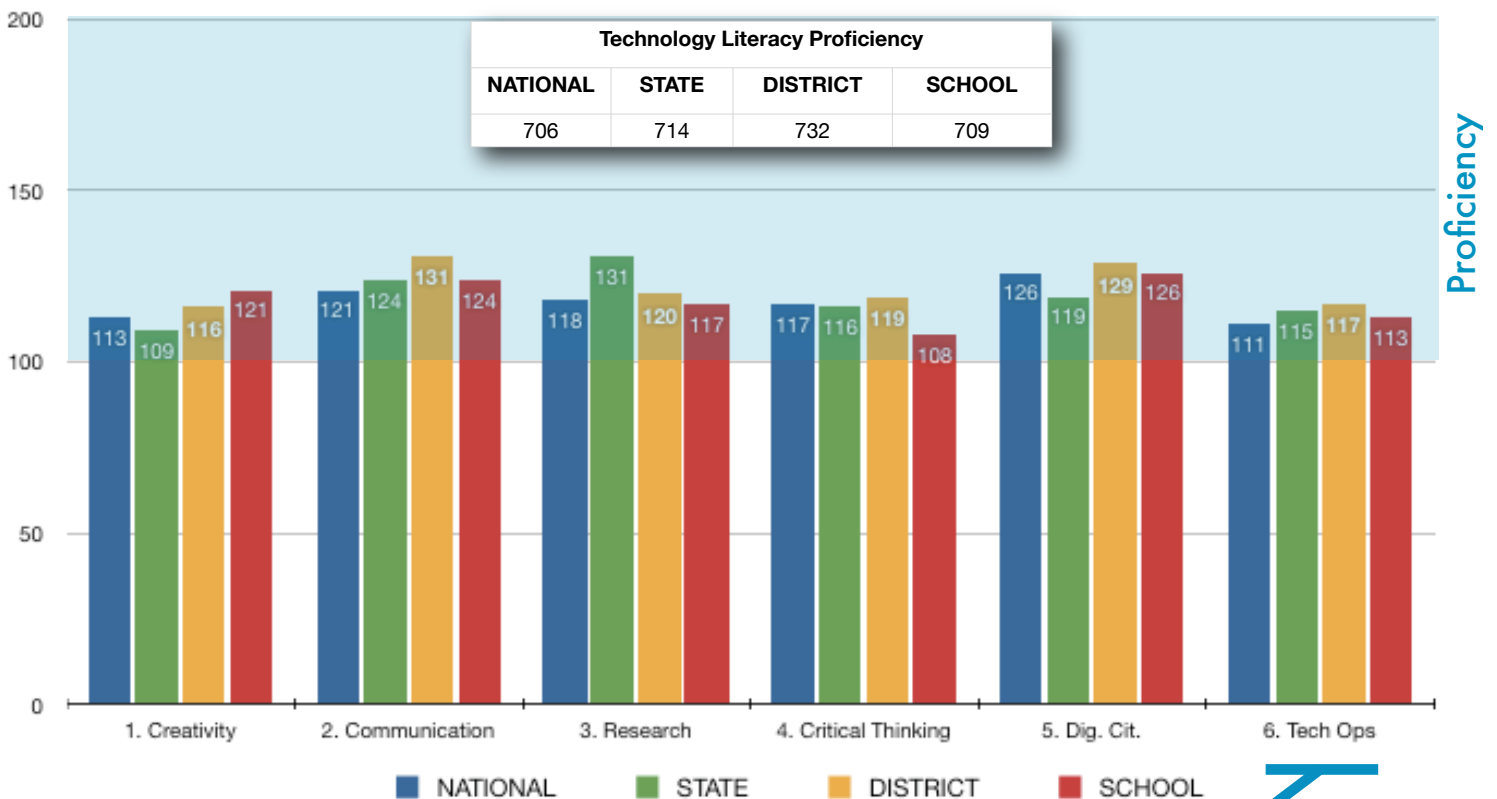
# Sample School Achievement Report

## LONGFELLOW MIDDLE SCHOOL - IRVING, NY SCHOOL ACHIEVEMENT REPORT - CREATED 1/08/10

July 1 2009 to June 30 2010 Adjust Dates

School Technology Literacy Achievement Score **709** Proficient

### School Achievement Data



Clicking on any ISTE Standard brings up the scores for every performance indicator.

Technology Operations and Concepts	MAX	PROFICIENT	NATIONAL	STATE	DISTRICT	SCHOOL
6a. Understand and use technology systems	43	22	24	26	26	25
6b. Select and use applications effectively and productively	70	35	42	39	41	41
6c. Troubleshoot systems and applications	43	22	24	28	27	25
6d. Transfer current knowledge to learning of new technologies	43	22	26	23	24	24
<b>Total</b>	<b>200</b>	<b>100</b>	<b>115</b>	<b>116</b>	<b>117</b>	<b>115</b>

# PROJECT REPORTS

Project reports assist students and teachers manage the project and assessment process as they create their TechYES projects for technology literacy certification. Reports give teachers, site administrators, district, regional centers, and state educators a snapshot view of the variety of authentic projects done by students. Reports allow drill-down for technology use, curricular area integration, project descriptions, and links to the actual projects.

## Sample Project Report - School

### LONGFELLOW MIDDLE SCHOOL - IRVING, NY TECHYES PROJECT REPORT - CREATED 7/04/09

#### Report 3 - Completed TechYES Project Descriptions

August 1, 2008 to April 15, 2009 - Page 1 of 73

Peer Mentor Name	TechYES Student Name	Advisor Name	Project Number	TechYES Project Title	Date Met Requirements	Date Certificate Issued	TechYES Project Description
Greg Partch	Arthur Albert	Megan Evander	1	Civil War Pictures	10/23/08	12/2/08	Found ten battle sites from north and ten from south during the civil war. Placed them on Google Maps and plotted the invasion strategies from both parties. I posted pictures on each pin so the user can see what the battle looked like.
Craig Costello	Arthur Albert	Megan Evander	2	Creating Email Lists	11/27/08	12/2/08	Set up email lists for teachers. I created a presentation to show to the teachers about how to access and organize their email accounts.
Tina Rebholtz	Bob Woods	Megan Evander	1	Treadmill Statistics	10/24/08	12/2/08	I created a spread sheet with formulas that track when a student runs on a treadmill. This spread sheet is available for all PE students to use online.
Cheryl Robinson	Bob Woods	Megan Evander	2	Graphing Calculator	11/27/08	12/2/08	I created a spread sheet template that allows me to move my calculator graphs to the computer. I did a presentation to my math class on how to create the spread sheet.
Sammy Salazar	Franklin Williams	Raul Smith	1	Poetry with Liberia	10/23/08		I was able to upload poetry files about Africa. I also emailed the authors and got a response about their inspiration for writing the poems. I shared this information using iMovie.
Tina Rebholtz	Jennifer Dunn	Megan Evander	1	Obesity and Nutrition	10/21/08	12/2/08	Brought together a variety of data and charts to show how bad eating can make you fat. I used Comic Life to make a comic strip brochure to pass out to my health class.
Sheryl LeDuc	Jennifer Dunn	Megan Evander	2	Plagiarism control	11/27/08	12/2/08	I made a webpage for the middle school Language Arts departments about our schools plagiarism policy.
Greg Partch	Jerry Rose	Raul Smith	1	Civi War Reenactment	10/26/08		Found some good pictures in books and the web. I scanned the images and imported them into Photoshop to make paper dolls. I made a colonial fashion show out of these pictures.
Shanell Fields	Jerry Rose	Raul Smith	2	School Board Presentation	1/15/09		Made spreadsheets and charts to show what Principal wanted to present to school board
Linda Sullivan	Jon Smith	Megan Evander	1	Learn Science Probes	10/26/08	12/2/08	I learned the new Science probe software and created a Powerpoint presentation for my science class to watch. Everyone liked it because I look pictures of me and my friends using the probes for cool science experiments.
Greg Partch	Jon Smith	Megan Evander	2	Soldier Interviews	11/26/08	12/2/08	I interviewed my grandpa about WW II with a video camera. I created a video using iMovie about his experience in the war.

# DASHBOARDS

Online dashboard displays offer students and teachers project and class management control and feedback. Color keyed visuals speed up formative assessment and help students understand the project process.

## Sample Teacher/Advisor Dashboard

The *Dashboard* is the Advisor’s main summary view of the TechYES online tools. The student projects are listed next to each student name, and color-coded for a quick overview of all TechYES projects and certifications.

The screenshot shows the TechYES Dashboard interface. On the left is a sidebar with navigation options: Dashboard, Projects (New, Unclaimed, Pending, Mentor Approved), Certificates (Pending, Approved), Blog (BlogRoll), Wiki (UPDATES), Forum, Learn, Toolkit, and Reports. The main content area is titled 'Dashboard' and includes a sub-header 'Viewing Advisor Dashboard | Switch to Student/Peer Mentor Dashboard'. Below this are tabs for 'TechYES Students' and 'TechYES Peer Mentors'. A table lists student projects with columns for NAME, PROJECT 1, PROJECT 2, and CERTIFIED. The rows are color-coded: red for 'NO PROJECT', yellow for project started, blue for peer mentor approval, and green for advisor approval. On the right side, there are buttons for 'Add Student' and 'Add Group', and sections for 'GROUPS' (Per. 1 Technology (5), Tech Wizards (2)), 'ARCHIVED ACCOUNTS' (34 archived accounts), and 'CERTIFICATES' (49 Remaining, 50 purchased / 1 used).

NAME	PROJECT 1	PROJECT 2	CERTIFIED
<input type="checkbox"/> <a href="#">Nurul Aziz</a>	Jakarta	Bestari 2009 Memories	n/a
<input type="checkbox"/> <a href="#">Henato Santos</a>	Stars of Recife	NO PROJECT	n/a
<input type="checkbox"/> <a href="#">Mary Smith</a>	NO PROJECT	NO PROJECT	n/a
<input type="checkbox"/> <a href="#">Tom Thompson</a>	Butterflies of Liberia	Google Earth Civil War Plot	Yes
<input type="checkbox"/> <a href="#">Jose A Valente</a>	Birds of Campinas	NO PROJECT	n/a

NAME	PROJECT 1	PROJECT 2	CERTIFIED
<input type="checkbox"/> <a href="#">Steve Colier</a>	Create a TLC Curriculum	Birds of Tacoma	n/a
<input type="checkbox"/> <a href="#">Joannah Kirland</a>	NO PROJECT	NO PROJECT	n/a

Dashboard color codes:

- Red - Project not started
- Yellow - Project started
- Blue - Project approved by Peer Mentor only
- Green - Project approved by Advisor

As the student projects are evaluated and approved, the Dashboard changes to reflect current project status. The Dashboard also shows how many certificates are left to issue.