Final Grant Report
2013 Regional Bibliographic Data Bases and
Interlibrary Resources Sharing (RBDB) Program
Sue LeBlanc, SLS Coordinator
Delaware-Chenango-Madison-Otsego BOCES
3/30/14

Outcomes

Anticipated: By March 2014, DCMO SLS librarians will be introduced to the idea of library as maker space and overview to the use of a 3-D printer

Actual: Librarians were introduced to concept of library as maker space and offered an overview of how to use a 3-D printer at our January 16, 2014 workshop, provided by DCMO SLS, hosted by Afton High School Library, entitled "Making Meaning in the School Library." The SLS Coordinator presented the first portion of the meeting, an overview of the maker movement and maker spaces in libraries. The School Library System shared 3-D printing articles and other maker space information with the librarians via the LISTSERV prior to the meeting.

Anticipated: By March 2014, the lead librarian for this project, who will take the initiative for learning about and integrating the 3-D printer into his school, will share practices with the other school librarians in the region, in the context of a one day training at his library.

Actual: Our project's lead librarian shared best practices for 3-D printer use in the school library with our region's librarians at our January 16, 2014 workshop, hosted by the lead librarian, as noted above.

Anticipated: Policy, procedures, and guidelines for loaning the printer and for use of the printer in the school library will be developed by school library system coordinator and the lead librarian

Actual: Recommended policy, procedures, and guidelines for loaning the printer and for use in the school library were developed by lead librarian together with SLS Coordinator, through face-to-face meetings and email contact.

Anticipated: Suggestions for best practices for use of the 3-D printer in the school library context, including collaboration, consultation, training, and other appropriate topics, will be developed by a team consisting of at least: the school library system coordinator and the lead librarian for this project

Actual: Suggestions for best practices for use of the 3-D printer in the school library, particularly in regards to training and related topics, were developed by the lead librarian and SLS coordinator through face-to-face meetings and email contact. The

lead librarian did not have the opportunity to engage in any collaborative projects with teachers.

Anticipated: The school library system will share all deliverables with the libraries of the SCRLC region, and will develop a procedure for in-house loaning of printer use for SCRLC region library- affiliates who would like to experiment with it.

Actual: The SLS coordinator created a web site to more effectively facilitate the process of sharing all deliverables, digitally, with the SCRLC region and beyond. This can be found at the following address: http://3dschoollibrary.weebly.com. SCRLC region library affiliates interested in seeing/using the printer firsthand may contact us using the form on the web site "Contact Us" page: http://3dschoollibrary.weebly.com/contact-us.html. SCRLC is also welcome to extend this invitation through the SCRLC newsletter and any other appropriate means.

Evaluation:

Workshop survey/feedback form from librarians who attend 3-D printer orientation: Of the 15 librarians who attended our January meeting, 3 (in addition to our lead librarian) expressed interest in borrowing the 3-D printer for their library or program. Additional ones expressed interest in the idea of a maker space (e.g., a less "techie" manifestation). Most commonly cited reasons for lack of interest in borrowing/implementing the 3-D printer were: lack of time, and lack appropriate schedule.

Survey/feedback from librarians to whom the 3-D printer is loaned, including observations about student use:

We delivered the 3-D printer to its second school library "home" in Mid-March, where the librarian intends to use it with the 20 students in her after-school technology club. Feedback is not yet available from that site. Feedback from our lead librarian at our first location includes that:

- The printer engaged many students who have never otherwise used library services, and so brought the opportunity to develop relationships with them;
- The printer spurred interest in and use of the library's larger maker space;
- The 3-D printer engaged students in the process-oriented, iterative work of creation, rather than consumption.

Survey/feedback from students who use the 3-D printer

The feedback from students who utilized the printer was very positive. All agreed that school libraries should offer 3-D printing services. Reasons given were for creativity purposes, e.g., "because it gives kids the chance to use their imagination in another way", and for technological access, e.g., "because any technology experience that kids have is good." Regarding a question about reflections on learning, students cited the precision

needed to design 3-D objects, the potential to print anything you wanted, be it utilitarian or fun, and simply the (wonder about the) fact that it is possible to print things in 3 dimensions. Some students' advice to new student users is also posted on the web site, on the "Getting Started" page.

Statistics on actual usage of printer

The overall number of students who directly used the machine for printing in the 5 months it was at our lead librarian's library was 32. Some of these students used it to print more than one product. Additional students were impacted through exposure, observation, awareness, etc.

Deliverables:

- Policy, procedures, guidelines developed
- Suggestions for best practices compiled
- Both of the above shared with SCRLC to distribute accordingly
- ***Please see outcomes, above, for a complete description of deliverables, and the attached print version of the 3Dschoollibrary web site.***

Additional Notes/Outcomes:

After the printer was moved to its next location, the lead librarian put in a request to purchase a less expensive 3D printer for his library. His principal approved the purchase, because its usage and value were proven through the successful implementation of the grant-funded one.

The SLS Coordinator has already shared the new website with two audiences: the iBOCES sharing group at the NY State EMTA conference (3/26/14) and the LibraryMakerSpace LISTSERV (3/29/14). It will be shared more, as appropriate. New resources will be added, e.g., collaborative and stand-alone lesson plans and ideas, as appropriate.

While the deliverables are included in print version with this report, readers are encouraged to go to the following web sites for more accessible, dynamic, and extensive grant-related materials:

The digital version of the grant deliverables: http://3dschoollibrary.weebly.com

The lead librarian's blog (search on the label "3D"): http://:dddjournal.blogspot.com/

The lead librarian's school library web page:
http://www.afton.stier.org/MSHSLibrary.aspx

Budget Report

RBDB Grant

DCMO BOCES SLS

March 31, 2014

Purchased with RBDB grant funding:

MakerBot Replicator 2X - $2799. (Though a shipping charge was anticipated, they did not end up charging us one.)

Purchased as part of "matching" contribution, by DCMO SLS:

Item	Quantity	Price	Total
Makerbot Replicator 2X Filament	1 1 3	55 43 48	55 43 144
***Kapton Superwide Tape (for build plate)**	1	25 + 18.19 shipping	43.19
***Laptop dedicated to printer w strong graphics capability– HP Elitebook**	1	1312	1312
***WinPro Software for laptop**	1	60.49	60.49
			1657.68

*Items marked with the star were not listed as part of the original grant application.

3-D PRINTING IN THE SCHOOL LIBRARY

3-D PRINTING IN THE SCHOOL LIBRARY

This site offers guidance for school librarians who are interested in integrating 3-D printing in their programs. It is born from our experiences doing the same, in school libraries in the Delaware-Chenango-Madison-Otsego BOCES region in upstate NY.

Our printer was obtained through a RBDB grant from the South Central Regional Library Council (SCRLC). It has already impacted many students, we are grateful.

3-D PRINTING IN THE SCHOOL LIBRARY (/)

HOME (/)   MAKER PHILOSOPHY & STUDENT GOALS (/MAKER-PHILOSOPHY--STUDENT-GOALS.HTML)

GETTING STARTED (/GETTING-STARTED.HTML)   NUTS & BOLTS (/NUTS--BOLTS.HTML)   MORE...

"Machine, repair thyself." (http://dddjournal.blogspot.com /2013/11/machine-repair-thyself.html) - DDeVona

Lead Project Librarian Dan DeVona researched and discovered this Thingiverse solution to the reel binding problem that was causing printing issues with our brand new MakerBot. (And, he printed the fix on the printer.) His original blog post can be found here (http://dddjournal.blogspot.com/2013/11/machine-repair-thyself.html).

"3D printing is all about process as much as product; remembering that one of the signature functions of 3D printing is prototyping; the idea of "testing" a design, evaluating and reconfiguring "versions" towards a fully realized final product. _You have to be a celebrator of the journey, not just the destination._" -DDeVona

[Note: please go directly to site for a better viewing / reading experience.]

...tant to ask before bringing a 3-D printer into your school library:

...o try things multiple times to get them right, to learn from experience?
...ies that are overcome with a little persistence. For example:

...are purchasing a printer that no one in your immediate community/network owns,
...networking, and experimenting with the printer when you are presented with has a
..., found a printing issue in the first days of use, which he discerned was because of
...e tube. He found a "fix" on Thingiverse (see below). He printed it himself, and the
...nine; just as much a your lawn mower, sewing machine, or Ford Fiesta. As such, the tweaking,
...hanical device cannot be your enemies, they have to be the challenges you enjoy mastering."
...ple, through experimentation, Dan and the students have discovered that order of
...Sketchup is important. Again, learning by doing.

...use of the 3-D printer?
...nveil the printer, as they will impact your rules for 3-D printer use. Here are

...ative process of design.
...ling, using a software such as Sketchup.
...example, those pertaining to mathematics, science, or other content areas.)

...ves, your policy and procedures for implementation will fall into place. (And, it is
...a 3-D printer in your library.) *Your goals and objectives will help you to* answer questions such as:

Do we want students to use it only for printing their own designs? Or, will we allow them to print others' designs? What is the balance of creation vs. print on demand that we will strike? For example, our Lead Project Librarian, Dan DeVona (see "About Us"), allowed students to download and print a Thingiverse design only after they had created 3 of their own, printable designs from scratch. (More about Thingiverse under "Getting Started" tab.)

Just to belabor our point, **we believe** that 3-D printer implementation in the school library should be founded on **a philosophy that espouses students engagement in the creative, iterative, design process.** For example, if a printer is purely used for "print on demand" purposes, whereby students simply download and print others' designs, then students will learn the steps of printing on demand – arguably a form of consumption, rather than creation. So rules, based upon your goals and objectives, are important to establish before you unveil the printer.

3-D PRINTING IN THE SCHOOL LIBRARY (/)

3-D Modeling Software

While there are several options for 3-D software out there, we think Sketchup (http://www.sketchup.com) is the easiest to use, and the basic version is free for educators and students alike. One popular use of 3-D printing software is for architectural applications, so don't be surprised to find tutorials based upon creating houses, buildings, etc. It's fine for our students to learn in this context, and hey, eventually they can even print a scaled down model of their own house!

We recommend starting with one of the many Sketchup video tutorials out there, for example, the ones found on their "Video Tutorials" page:

Getting Started w/ Sketchup, Part I (http://www.sketchup.com/learn/videos?playlist=58) Video

After learning the basics of the Sketchup tool bar, etc., students can then have a go at their own designs. A few suggestions:

- *Don't expect students to have a printable design in their first session. In fact, you may want to designate the first session as such, so they don't have unreasonable expectations.*
- *Be sure to have students incorporate the use of the measurement scale in their design. It is an important aspect to consider, not to mention a real-life math application.*
- *Be conscious of order of operations; it will make a difference in the final product. This might be something that you learn by trial and error, as a class.*
- *A nice project to start with is a customizable keychain. Possible order of operations might be: have students draw a rectangle, put a hole in it, raise it, and create and manipulate the type (e.g., their own initials.)*
- *Encourage students to learn more by tapping into the resources and community on the web. Dan's approach was something like this: "Does someone in this room know how to make a sphere in Sketchup? If not, look it up on the web."*

Also, 3-D printers take an STL file (.stl). In order to get the Sketchup file into this format, users will need to download the extension that allows you to export as an STL file. You can download it from the extension warehouse (http://extensions.sketchup.com).

We recommend that the librarian or teacher be the "gatekeeper" of the printer. So before printing, each student design should be reviewed by the librarian and student together, with the librarian noting any flaws that might result in a printing error, etc.

3-D PRINTING IN THE SCHOOL LIBRARY (/)

THINGIVERSE (HTTP://WWW.THINGIVERSE.COM)

No venture into 3-D printing can be complete without a foray into Thingiverse (http://www.thingiverse.com). Thingiverse is a site for posting, sharing, discovering, and customizing 3-D designs.

Some thoughts about Thingiverse in the context of the school library:

- A librarian can use Thingiverse to show a few tangible first prints before students start with their own designs.
- For students who are having a hard time grasping what they might 3-D print, Thingiverse can provide a smorgasbord of possibilities to stimulate their imaginations.
- It might be appropriate for students to create their own accounts on Thingiverse, which allows them to customize Thingiverse items designated as "customizable". That is, a user can change the parameters of the item to make it their own. A popular customizable item is the lithopane (https://www.thingiverse.com/thing:74322), which will utilize a photo that originated from the user.
- Such an account also allows students to post their own designs to Thingiverse, thereby involving them in the greater maker community. An added bonus: every design that is uploaded to Thingiverse is automatically featured on their home page (photo feed), until it is eventually displaced by the subsequent designs.

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3-D PRINTING IN THE SCHOOL LIBRARY

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3-D Printing Nuts & Bolts

Through our grant, we purchased the latest version (at that time) of MakerBot's Replicator 3-D printer, which is the 2X. While some of the recommendations and instructions below are specific to that printer, most are generalizable to any desktop 3-D printing situation.

Printing on Demand: A policy of **not** printing on demand is recommended. Instead, an "I'll get to it as soon as I can" approach can alleviate angst and unreasonable expectations. And, given that the printer could glitch, it is best not to promise anything. For Dan, students didn't seem to be bothered that they couldn't see their thing being printed, and he would put the object away until the person came, so they would be the first to see it.

Size/scale: In general, it is recommended to print items that are 100 millimeters wide or less. This allowed a smaller test print – less time and waste – to see if it was going to work. It is easy to scale things up, if the model was proven first. And, for most things printed, size wasn't important.

Always be there for the test strip, which is printed at the onset of every job. So, if the test strip doesn't print correctly, you should cancel the job and reload the print head. (Assumably there is some sort of clog in this case.) Because the nozzle starts to cool down right away, if you clear the clog right away you will be able to take advantage of the heat. **On digital screen --- utilities --- select "load right." When it says "ready now", then pop off cover and push a little of the filament down through the clogged head. A little melted plastic will dribble out below. You may have to do it twice.

Preheating: Also, watch the first print. For example, if you're printing a rectangle and the first corner doesn't stick then it might not be warm enough. This is why it is recommended to always preheat. Preheating takes about 10 minutes.

Rafts: There is the option within the software to use a "raft", or base, when printing. Most of the time you don't need to use such supports if you design/layout thoughtfully. Supports can make the peeling/removing process more tedious.

Tips: Regarding thoughtful design/layout, sometimes in Thingiverse there is a tab under designs labeled "instructions".

To preheat. Select "Preheat" and choose which nozzle (tool) to work with. So when you select the tool, the associated tool and platform will preheat.

Multiple Jobs. If printing is going well, it may be a good time to cue up multiple jobs, if you have them. Pop off the object when it's still hot. (Librarian/teacher.) If it has some height to it you may be able to just grab it. For flatter objects, you will likely need something that is flat and blade-like. (Dan things an artist's palette knife with a thin blade could work well here.)

The Tape (film covering build platform) does not need to be changed very often. If there is a rip in it somewhere you can position the object, using the software, to not print over the rip. It is better to position items towards the middle, because the edges of the platform tend to be cooler, which can cause the object's edges to come up.

Measuring Tools

- **Digital Caliper** – Can be very helpful in the design process
- **Scale** – can be used to weigh objects and do related math. For example, how long will the kilo of filament last if your project weighs this much?

3-D PRINTING IN THE SCHOOL LIBRARY (/)

RESOURCES

General Resources for 3-D Printing

- *Makerspace.com blog (http://makerspace.com/blog)* posts about cutting edge makerspace programs in K-12 education, among other things
- *Make It At Your Library (http://makeitatyourlibrary.org/)*
- *Instructables (http://www.instructables.com/)*
- *Real-Life Applications of 3-D Printing (http://library-maker-culture.weebly.com/3d-printing-in-use.html)*

Young People Printing

- *Kansas Teen Uses 3-D Printer to Make Hand for Boy (http://www.kansascity.com/2014/01/31/4790811/kansas-teen-uses-3-d-printer-to.html)*
- *Thingiverse plans for the above Robohand (http://www.thingiverse.com/robohand/designs)*

3-D Career and College Readiness

- *SUNY New Paltz Unveils Nation's First Makerbot Innovation Center (https://www.youtube.com/watch?v=mKbeUN0aVzg&feature=share&list=-UUNfT-1X71ogTOZQVGrPHmlQ&index=8)*

Articles Providing Excellent Rationales for Makerspaces in Libraries

- *Shifting From Shelves to Snowflakes*
- *The Joy of Making Things, by Annie Murphy Paul (http://anniemurphypaul.com/2013/11/the-joy-of-making-things/)*
- *3D Printers in the Library: Toward a Fablab in the Academic Library (http://acrl.ala.org/techconnect/?p=1403)*

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CAST OF CHARACTERS

Lead Project Librarian **Dan DeVona**, of Afton High School, volunteered to take the 3-D printing plunge. Dan is an artist, poet, technology enthusiast, and all around creative, process-oriented guy (among other things). Dan's blog can be found here (http://dddjournal.blogspot.com/2014/03/lobby-display.html). By clicking on the label "3D", you will see all of Dan's postings of his 3-D printer experiences and revelations. Dan's high school library page can be

Using a fully functional 3-D printed comb. found here (http://www.afton.stier.org/MSHSLibrary.aspx).

Sue LeBlanc, a School Librarian and current NY State School Library System Coordinator, is interested in ways of engaging students' curiosity and creativity in the school library setting, including through the implementation of maker spaces.

South Central Regional Library Council (SCRLC), the regional library council serving the DCMO region, whose mission is to lead and advocate for member libraries by promoting learning, collaboration, and innovation. SCRLC is the organization that provided the RBDB grant for this project. The SCRLC website can be found here (http://www.scrlc.org).

Delaware-Chenango-Madison-Otsego (DCMO) School Library System: (http://www.dcmoboces.com/sls) provides a variety of services, from professional development, infrastructure and support for automation and inter-library loan, consultation, technology, and related services to our member school libraries and districts.

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Do you have questions or suggestions? Or, are you from a library or institution served by the South Central Regional Library Council and would like to see our printer in action firsthand? Please contact us using the form below:

CONTACT FORM

Name *

First   Last

Email *

Comment *

Submit

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2013-2014 DCMO BOCES
<u>School Library System</u> Professional Development Offerings
Participant Registration Form

To process your request correctly, please complete ALL information.

Please return this form by January 6, 2014

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Participant's Name: _____ School: _____

Building: _____ Gr Lev/Position: _____

Making Meaning in the School Library (8:30 – 11:30 a.m.)

How do our professional strengths and vision influence library programming? Afton HS librarian Dan Devona will share his Teams of One philosophy for school library service, including the practical aspects of integration of a maker space and 3-D printer in the library. Roundtable discussion and hands-on time will be included.

OPALS User Group – Updates and Tools w/ John Schuster (12:30 – 3:00 p.m.)

John Schuster, Media Flex representative, will present on the latest updates and tips and tricks for the OPALS catalog, as well as recommended resources for school librarians.

Date:

Thursday, January 16, 2014

Location:

Afton High School Library

_____ **I will be attending all day / *8:30 a.m. – 3:00 p.m.***

_____ **I will be attending workshop only / *8:30 a.m. – 11:30 a.m.***

_____ **I will be attending the communication coordinators meeting only *12:30– 3:00 p.m.***

***Lunch will be provided.

The Superintendent's signature provides the approval for teachers' participation in the indicated workshops and, when appropriate, for payment of stipends/substitute reimbursement.

Superintendent's Signature: _____ Date: _____

Teachers registered for a session scheduled in the evening, or on a weekend or school holiday, will be paid a stipend of $16.67 per hour, with their Superintendent's approval. The IRS and Teacher's Retirement System require that all participants being paid for BOCES Staff and Curriculum Development activities be put on the BOCES payroll. This means that:

1. All participants receiving a stipend must complete the DCMO BOCES Employee Payroll Package which includes: Employment Eligibility Verification Form, Employee's Withholding Allowance Certificate (NYS Form IT-2104), Employee's Withholding Allowance Certificate (W-4), Oath of Allegiance, NYS Teacher's Retirement Option Form, and copies of your driver's license and social security card or passport.
2. The additional salary and experience credit will be reported to the Teacher's Retirement System.
3. All participants will receive a W-2 from BOCES.
4. If you participated in a BOCES workshop previously, we already have the necessary paperwork on file and you will NOT be required to complete the Employee Payroll Package.

Note: Please allow 4-6 weeks for the stipend payment.

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Please return this form to: Rebecca Dixson, DCMO BOCES School Library System via the BOCES delivery.

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Imagine it.
Design it.
Make it.
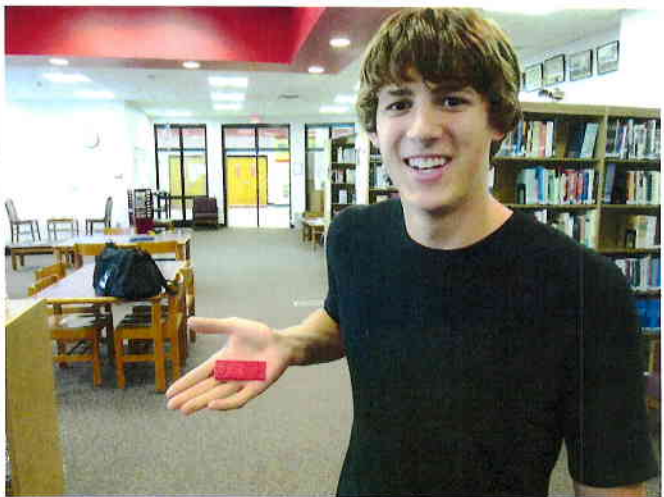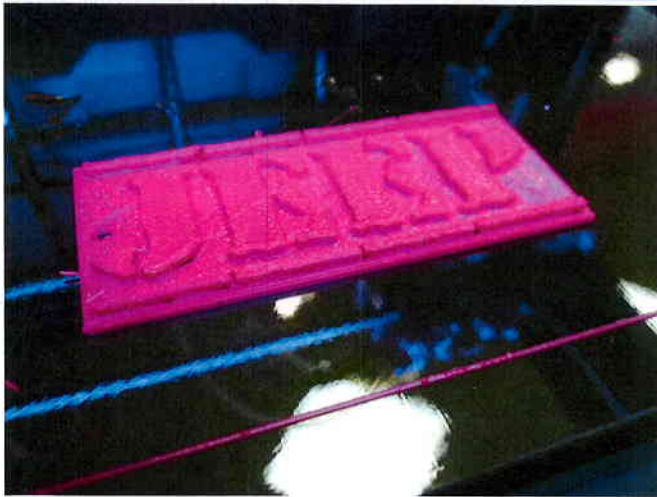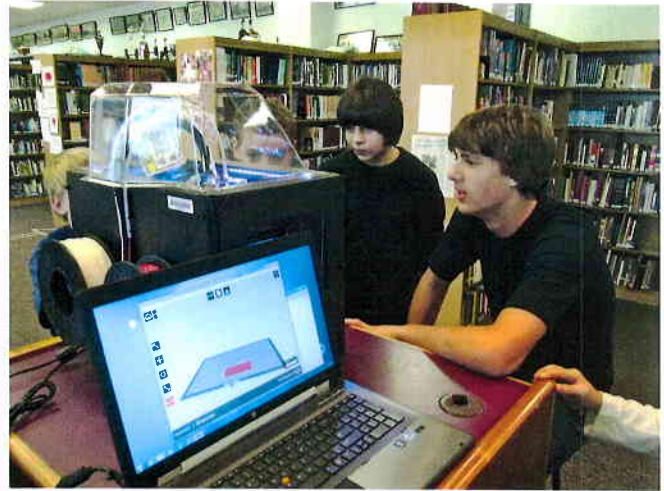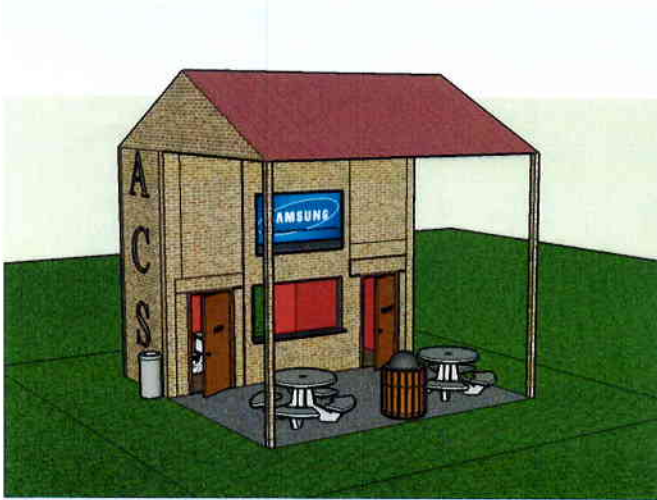
As a 6th grader, James used Google SketchUp to design
a pavilion for our athletic grounds.

Now, as a senior, he is using SketchUp once again to design objects.
This time, however, he can actually make them
on the MakerBot 3D printer in the HS Library.
We all can.
Imagine it. Design it. Make it.
We'll show you how in the Afton MS/HS Library.

Afton Central School *NEWSLETTER*

www.aftoncsd.org

News from the Superintendent

Dear District Residents:

Brrr! The month of January has certainly been a cold one! I would like to take a moment to wish everyone a Happy New Year!

The second half of the school year is upon us! Regents exams are completed and teachers are busy preparing for the upcoming New York State Assessments.

The new Common Core State Standards have been the focus of our teachers this year. Each conference day has been devoted to developing plans based on the new standards and the newest modules that have been released. To help parents better work with their children on homework, the Elementary School has presented several Math Parent Nights!

OLWEUS PROGRAM

[handwritten note: See pages 2 + 3]

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The Adult and Continuing Education program, Home and Careers room, Fine Arts lab, and Business Office will be moving back to that area soon.

2014-2015 BUDGET

Preparations for the 2014-2015 budget are underway. The budget calendar has been presented to the Board of Education as well as the Governor's proposal for education funding. As the next few months go on, the budget discussions will be the major topic of the Board meetings.

If you have any questions or concerns, please try to attend. The dates for the meetings are posted on the website. I will also be trying to update the community through a Superintendent's Blog on the website.

As always, the District is committed to providing an outstanding educational program for our students and a fair tax levy for our taxpayers. We will be developing a budget with the goal of keeping programs for our students intact.

NEW WEBSITE

We have a new website, which went live on January 31. Please let me know how you like it. We have tried to make it more user friendly.

WALKING PROGRAM AND POOL PROGRAMS

After the holidays, many of us are determined to become healthier by eating better and exercising. With the onset of very cold weather, the school offers several options for its residents.

A walking program is available either before school starts at 6:30 a.m. or after school at 3:30 p.m. If you are interested in walking at the school, please contact the Elementary Office, at 639-8234, to sign up. *See pool fitness schedule on page 2.*

— Elizabeth Briggs, Superintendent of Schools

Fall Scholar Athletes

Cross-Country (Boys)	**Kyle H.**
Cross-Country (Girls)	**Daphne K.**
Field Hockey	**Cassidy P.**
Soccer (Boys)	**Nolan E.**
Volleyball (Girls)	**Rebecca H.**
	— Stacy Parks

Due to security purposes, students are listed by first name and last initial unless they have graduated.

Playground Committee Update

If you have not heard, or been by the school recently, we now have three new pieces of equipment that were installed over the summer by staff who donated their time to get them in place. These new pieces of equipment were purchased through a grant that we received.

The playground committee started off the school year having a spaghetti dinner on the eve of open house in September. This was a great success. Staff members throughout the school were asked to donate items that would be needed for the dinner! A big thank you to all who helped out. We did not have to purchase very much. Thanks to the HUGE turnout of staff and families, we served just over 200 people and we earned over $1000. There was a sense of community during this event. The success of the dinner was not only monetary, but a great way for family, friends, and staff to visit with each other.

Students, families, alumni and community members are continuing to help our playground fund grow by collecting and submitting Box Tops. The goal for this school year is 25,000 BoxTops which equates to $2,500 from General Mills. Right before Christmas we reached the half way mark with 12,500. Please continue to support us in our efforts.

Last June we sent out a direct donation letter to the entire community as well as to families that live outside of the village and town asking for donations. We received many responses to our request. A bulletin board in the elementary hallway displays the families/community members that have contributed to date. Thank you so very much. If you would like to make a donation, please send it to Afton Elementary School in care of the Afton PTO. Every little bit helps us get closer to our goal.

Several fundraisers are being planned for the upcoming months Watch for more information! We hope you will support the Playground Fund. If you have any suggestions, please contact Karen Ludwig or Deanna Lawrence at the school.

—Karen Ludwig

➔ FALL AND WINTER SPORTS' SUMMARIES *(continued)*

JV FIELD HOCKEY — *Coach Tammy Lambrecht-Mills*

The Junior Varsity 2013 Field Hockey team record was nine wins and two loses. The team scored 43 goals and all together only allowed nine goals by our opponents. To my 10th graders who will be leaving the team next year: "Be leaders on varsity, play tough, and have fun. For the remainder of you, I can't wait for next season to start. Awesome job this year."

MODIFIED FIELD HOCKEY — *Coach Jennifer Smith*

The Modified Field Hockey team enjoyed great success this season. Six different players scored so the offense was well balanced. The defense combined for two shut-outs and held the other teams to just one goal during five games.

The quality of play from the other teams was very good this year and our Lady Knights had to play hard each and every game.

The Champions' Court

For several, the MS/HS Library has created a large chess board on the library floor. This year they added some Afton Spirit to it by adding ACS trophies as chess pieces! Pulling the trophies out of display cases, and bringing them back into the limelight, has been great for students to revisit past Afton accomplishments and it has been a motivation to tackle the problem-solving challenges of chess on The Champions' Court!

—Dan DeVona

MakerBot 3D Printer

The Afton MS/HS Library is the first library in the DCMO BOCES to borrow the MakerBot 3D Printer from the School Library System. Over thirty students in grades 7-12 have designed and printed 3D objects since the printer arrived. Using SketchUp software which students have been using at ACS since the library recommended it six years ago, students have been practicing their skills designing and manipulating 3D objects.

Using plastic filament that is heated and extruded, the printer builds student designs layer by layer before their eyes. "It is important that we provide opportunities and resources in the library for students to discover new skills, practice them, and cultivate the expectation that they are makers as well as consumers," said Librarian Dan DeVona.

—Dan DeVona

MakerSpace

The Afton MS/HS Library has a growing MakerSpace for students to explore, discover, and apply new skills. "These resources, like our books and databases, provide students with the opportunity to connect their classroom instruction to new knowledge through hands-on experimentation, design, and technology," said Librarian Dan DeVona.

Within the MakerSpace students are free to design and print objects on a 3D printer or learn how to code and create uses for computer applications on a Raspberry Pi (a palm-sized *computer*). Using magnetic littleBits components, students can build a wide array of machines and gadgets that function by the same principles as everyday devices in the real world. A guitar amp with headphones is available for musicians to practice their music and a green-screen and software are set up for video and animation projects. Plus, tradition tools and materials are available to create everything from chariots to suspension bridges.

The library MakerSpace provides a place for students to hone their craftsmanship, gain respect for the revision process, recognize the benefits of collaboration, and create prideful work, all of which are integral work-habits in our classrooms. By expanding the definition of *library resources*, the library is expanding its capacity to help students find relevance in their studies by creatively connecting to resources that inspire learning.

—Dan DeVona

Common Read Hosted by MS/HS Library

The Afton MS/HS Library organized and hosted a Common Read for the ACS community this autumn. Twenty students, teacher, and staff members read *Winter World: the Ingenuity of Animal Survival* by Bernd Heinrich. Books for common Reads at ACS were purchased through a grant. Readers exchanged observations, experiences, and suggestions for further reading.

If you would like to read this fascinating book, contact the Afton MS/HS Library. You will be amazed, yet again, by the world around you.

—Dan DeVona

All-State Mixed Chorus

Nolan E., Amelia R., Christiana R. and **Leslie T.** represented Afton in the Zone 8 Area All-State Mixed Chorus at SUNY Oneonta on November 22-23. The students were selected based upon their excellent solo evaluation ratings from last spring. The concert was held at 3:00 p.m. in the Hunt Union Ballroom on Saturday, November 23. Congratulations to our Afton Vocalists!

—Michal Westover

Cleopatra and Ancient Times

A few of the eighth grade students. Standing from left to right are: Antonio D., Kegan M., Kenny N., Kyle G., Damion R., Cheyenne S. and Hunter D.; Kneeling: Hannah G., and Tannery M.; Absent from this group: Mario R.

The eighth grade reading classes are reading about Cleopatra and ancient times. The students were assigned projects with topics such as telling time, triremes (war ships), food, chariots and clothing of that time period. Some students made 3-D projects, charts and others created power point presentations. We would like to thank Mr. DeVona for sharing his expertise and materials.

—Lu Dwyer

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Parting shot

With only minutes remaining before the loan of our 3D printer
ended, we made a last print (Xbox buttons!). We had already packed
up the spools, and only had a 8-foot length of miscellaneous
filament left. Here it is spiraling away along with the seconds!
Thanks again to our BOCES SLS and the SCRLC for providing this
great opportunity for our students. It was a blast!

POSTED BY DDAND AT 12:08 PM
LABELS: 3D, ACS, COLLABORATION, LIBRARIES, LIBRARIES
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