

2015 Achievement Awards Virginia Association of Counties

APPLICATION FORM

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 1, 2015.** Please include this application form with electronic entry.

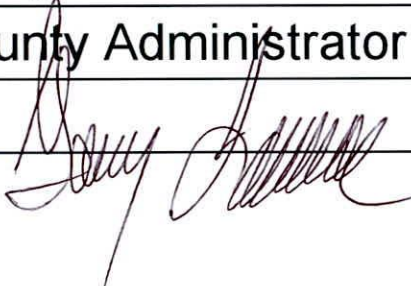
PROGRAM INFORMATION

Locality: Carroll County
Program Title: STEM Lab for Agriculture
Program Category: Community & Economic Development

CONTACT INFORMATION

Name: Gary Larrowe
Title: County Administrator
Department: Administration
Complete Mailing Address: 605-1 Pine Street, Hillsville, Va 24343
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E-mail: cadams@carrollcountyva.org

SIGNATURE OF COUNTY ADMINISTRATOR OR CHIEF ADMINISTRATIVE OFFICER

Name: Gary Larrowe
Title: County Administrator
Signature: 

1. Overview of the Program

Carroll County Public Schools has just opened a new STEM Lab for Agriculture. Carroll County is primarily an agricultural county. We have available in the county the following resources and opportunities: a school farm; the STEM Lab for Agriculture (we believe the first in the nation); agricultural internships; a commercial farmers market (\$60 Million a year); a local farmers market; agricultural packing houses; agricultural distributors; agricultural producers (local farmers both big and small); a local Board of Supervisors and Administrator who are extremely supportive of both agriculture and the school divisions efforts; a large number of partners: Virginia Tech, Wytheville Community College, the Crossroads Institute, our local farm producers, Virginia Produce, a number of large grocery chains, our local economic development organization, and the local Workforce Investment Act organization.

Our STEM lab is the top of the line. It was designed using the newest STEM lab at Virginia Tech as a model and has the same types of equipment. The lab is a \$500,000 investment by our Board of Supervisors, we have better equipment than most labs. Our students have already done soil and water samples from our school farm. They can tell you the types of bacteria (both good and bad) located in the soil and water. They have the ability to isolate DNA from both plant and animal matter. They have computers for the research and reporting their results. They have access to a Pre-engineering classroom across the hall which provides them with robotics, production management, laser cutters, 3-D printers, and CNC machining opportunities.

The only thing that our area does not have currently is a large food processing business. We believe that our efforts will be instrumental in attracting such a business to our area. We already have an industrial park completely ready for a business to build - water, sewer, electricity, fiber optic cable, and huge graded space waiting for some business.

We are working with Virginia Tech to design and build a STEM bus that will visit our elementary schools to introduce our K-5 students to STEM concepts and research. We are working with Virginia Tech graduate students to help us tweak the curriculum in our STEM lab at Carroll County High School (CCHS). We have submitted an FDA Challenge Grant with Virginia Tech and Wytheville Community College to create a Food Safety pathway for our students to begin work immediately upon graduation from CCHS; work toward an associates degree in Food Safety (possible the first on the east coast); or continue their studies toward a BS, MS, or PHD in Food Safety at VT. This semester we instituted a pilot internship in agriculture in which our students will spend 3 weeks with a farm producer, 3 weeks with a packing house, and 3 weeks with Soil Conservation.

Our hope is that these interns in future years will choose one aspect of agriculture and concentrate on that area during future internships.

Our middle school currently has both agriculture and STEM classes available. Our middle school students have their own farmers market after school when crops are in season. They get to keep the profits from the crops they bring to sell. Our parents and staff absolutely love this farmers market.

Our middle school STEM program introduces our students to elementary robotics and computer aided design. Our agriculture curriculum at the middle school introduces our students to computer controlled cutting and routing.

We truly believe that we can teach any of the STEM areas using Agriculture as the conduit.

As you can see, I am very excited about the potential of Carroll County Public Schools and STEM education with a focus on agriculture. I truly believe that we are workforce development, economic development, pathways for our students to work, community college, or a four-year institution. We will be a huge draw to any industry, business, or service that might want to come to Carroll County. I am very tired of handing diplomas to students in May knowing they will take our county's gift of education and skills to other areas of the state and country. I believe this is the beginning of the end of that practice. Our students will be able to go to work directly out of high school; succeed at a community college and use those skills here in our county; or be successful at a four-year institution and return to Carroll County to make a living.

We will always have a number of students who want to stretch their wings and try living in another area of the nation, but we have a much larger number of students who would prefer to stay in Carroll County to raise a family and make a living. I believe we can make that happen.

2. The Problem/Need for the Program

The United States has become a global leader, in large part, through the genius and hard work of its scientists, engineers and innovators. Yet today, that position is threatened as comparatively few American students pursue expertise in the fields of science, technology, engineering and mathematics (STEM).

President Obama has set a priority of increasing the number of students and teachers who are proficient in these vital fields. Millions of dollars have been included in the fiscal year 2015 budget as an investment in STEM programs.

Carroll County has deep seeded roots in Agriculture with the farm production and Agriculture providing the largest economic sector. In recognizing the importance of Agriculture to the citizens and to the well being of the community as a whole, the Carroll County Board of Supervisors have focused several projects on Agriculture, including the STEM Lab.

The STEM Lab for Agriculture was developed by a core group of Board of Supervisor Members, Educators and the Members of the Carroll County Industrial Development Authority (IDA) . The concept of experiential education is being lost in today's educational arena due to the fact of massive texting and less emphasis on being able to accomplish problems. The problem solving approach to education I provides a better learning tool and provides for education to be transferred from one area to another.

It is anticipated that not only farm career youth use the STEM Lab for Agriculture but also students who are headed into the medical field or other biological sciences. It is also believed that the STEM Lab for Agriculture will "grow" a new area of education across the nation and around the world.

STEM Lab for Agriculture Project
Carroll County, Virginia

3. Description of the Program

In 2008, the Board of Supervisors set a Board Goal to assist the Carroll County Public School System that would result in better preparation for High School and post secondary education success. In 2010, the BOS refined the Goal to include a STEM Lab for Agriculture. The Science, Technology, Engineering and Math Lab was fully functional in 2014. It is planned that the STEM Lab students learn scientific protocols that will assist local producers to meet higher Food Safety levels with providing lab services that will enhance their necessary documentation. While at the same time of the students solving real-life problems, they will utilize Science, Technology, Engineering and Math that will provide a new scientific base for further education in many disciplines. It is expected that other uses of the Lab will be developed as new needs for analysis is developed.

(Please see attached Press Release)

Carroll County, Virginia

4. Cost of the Program

Carroll County Board of Supervisors financed the STEM Lab for Agriculture Project through USDA-RD with over a \$540,000 investment in Agriculture, Education and Economic Development. A spread sheet is attached showing costs for construction, legal fees, professional fees, and furniture and fixtures. The program was included in the Carroll County High School HVAC re-model of approximately \$15,000,000 in 2014.

STEM Lab for Agriculture Project
Carroll County, Virginia

5. The Results/Success of the Program

The STEM Lab for Agriculture has:

Attracted students from non-Agriculture arenas as a learning tool
The STEM Lab for Ag. Is being visited on a weekly basis by visitors such as VA Tech,
Members of Congress and the State 4-H Director.

A USDA Challenge Grant has been written based on the STEM Lab for Agriculture and
news stories have spread across 32 states associated with the STEM Lab for Agriculture

The Local School Superintendent has been quoted as saying that the STEM Lab for
Agriculture is the best element of the Carroll County Public School offerings.



**First STEM Lab for Agriculture in the Nation to Open
August 6, 2014**

Carroll County, Virginia has deep seeded roots in Agriculture with farm production and Agriculture providing the largest Economic sector. In recognizing the importance of Agriculture to the citizens and to the well being of the community as a whole, the Carroll County Board of Supervisors have focused several projects on Agriculture.

In 2008, the Board of Supervisors (BOS) set a Board Goal to assist the Carroll County Public School System that would result in better preparation for High School and post secondary education success. In 2010, the BOS refined the Goal to include a STEM Lab for Agriculture. The Science Technology Engineering and Math Lab is set to open at Carroll County High School (CCHS) this school year (2014).

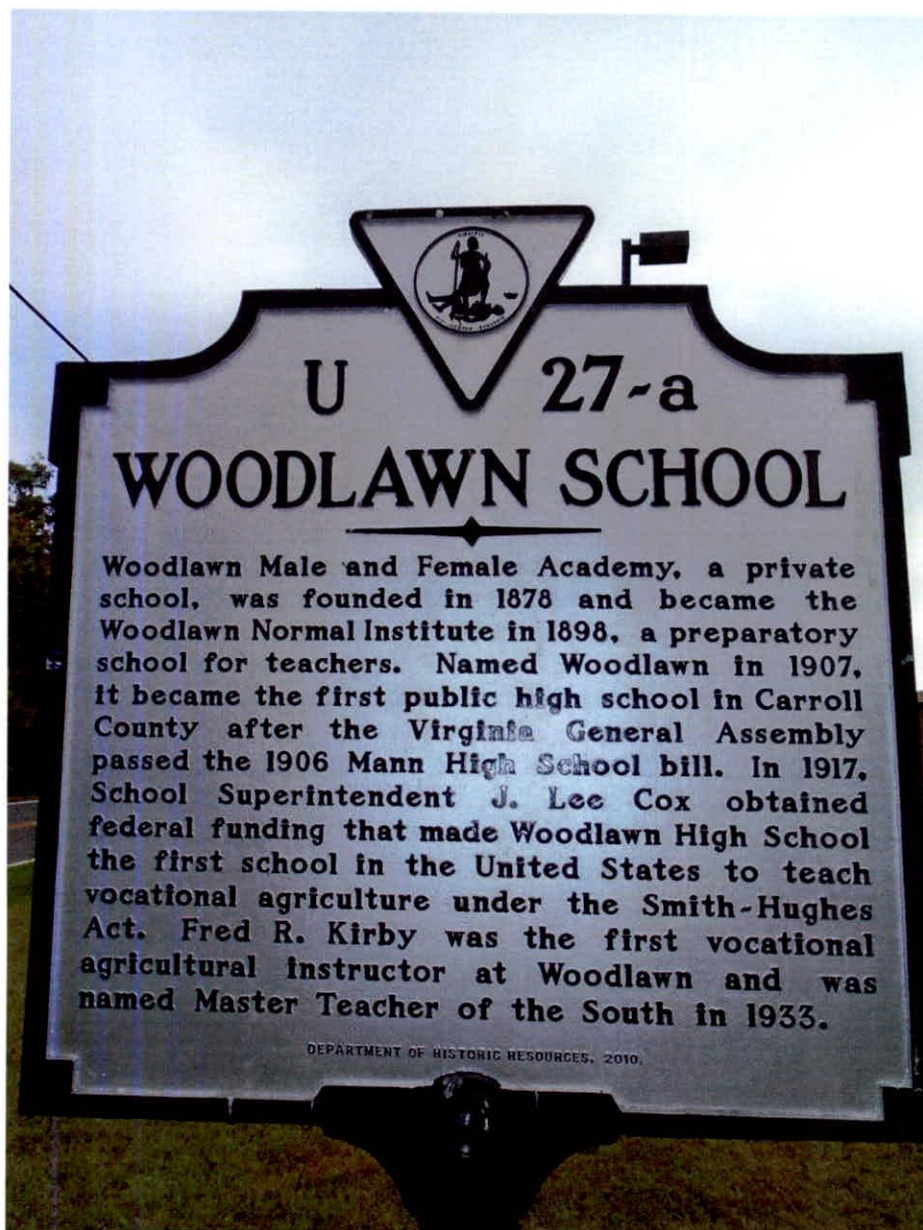


**New Fully Equipped STEM Lab for Agriculture in
Carroll County High School**

The Carroll County Board of Supervisors financed the STEM project through USDA-RD with a \$500,000 investment in Agriculture, Education and Economic Development. It is planned that the STEM Lab students learn scientific protocols that will assist local producers to meet higher Food Safety levels with providing lab services that will enhance their necessary documentation. While at the same time of the students solving real-life problems, they will utilize Science, Technology, Engineering and Math (STEM) that will provide a new scientific base for further education in many disciplines. It is expected that other uses of the Lab will be developed as new needs for analysis is developed.

History Repeats in Carroll County

Carroll County was the first location in the nation to teach Agriculture in High School through the Smith-Hughes Act of 1917. Now, Carroll County has the first High School in the nation to have a STEM Lab for Agriculture.



Carroll County is also one of only a few Counties in VA and the nation to have working school farms associated with the High School as well. Carroll County is also the home of the Southwest VA Farmers' Market that assists local producers to market more than \$30,000,000 of local crops per year. With the combination of the local assets, students will be able to learn about, identify and solve many real life problems in Agriculture and the community.

The combination of Agriculture Classroom instruction, STEM Lab for Agriculture, the School Farm, and the Farmers' Market is a unique combination that has equipped the Carroll County Public School System to be a National Leader in the arena.

Every subject of STEM can be taught using Agriculture as the "carrier subject" and the education can be transferred to other disciplines with little trouble. In today's environment, having the ability to solve problems and use Science, Technology, Engineering and Math to back up the solution is paramount for future success.

It needs to also be pointed out that the Carroll County Industrial Development Authority (IDA), Virginia Tech, VA Cooperative Extension and USDA-RD have been helpful in the process of developing the Carroll County STEM Lab for Agriculture.

For more information, please contact:

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Administrator, Carroll County
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Randy Webb
Agriculture Instructor, Carroll County Public School System
rcwebb@ccpsd.k12.va.us

17057 · CIP-CCHS STEM lab

Bill	01/27/2014	Pay app #1	Clark Brothers Company		14,419.80
Bill	02/24/2014	Pay app #2	Clark Brothers Company		42,511.50
Bill	03/24/2014	Pay app #3	Clark Brothers Company		71,004.60
Bill	04/28/2014	Pay App #4	Clark Brothers Company		75,199.50
Bill	06/02/2014	Pay App #5	Clark Brothers Company		110,483.10
Bill	06/24/2014	Pay app #6	Clark Brothers Company		31,472.47
Bill	08/08/2014	Pay app #7	Clark Brothers Company		39,669.94

Total Construction

384,760.91

Bill	02/18/2014	IDA Rev Bond Botkin Rose PLC		Legal fees	2,226.25
General Journal	01/31/2014	462	CTI Consultants Inc	recls CTI 0010076	402.75
Bill	02/28/2014	0010231	CTI Consultants Inc		268.50
Bill	03/31/2014	0010446	CTI Consultants Inc		671.25
Bill	10/31/2013	13028-1	The Lane Group		6,808.60
Bill	11/29/2013	13028-2	The Lane Group		6,837.50
Bill	12/30/2013	13028-3	The Lane Group		3,867.50
Bill	02/28/2014	13028-4	The Lane Group		5,611.40
Bill	03/26/2014	13028-5	The Lane Group		4,527.50
Bill	04/30/2014	13028-6	The Lane Group		892.50
Bill	08/29/2014	13028-7	The Lane Group		595.00
Bill	11/20/2013	80303253 144	The Roanoke Times		1,034.64

Total Construction professional fees/Admin

33,743.39

Bill	03/27/2014	1132987	Markertek.com	KR-VP728 - Kramer VP-728 9-Input Digital	2,035.50
Bill	03/27/2014	1132987	Markertek.com	OMX-HDMI-1X4DA - Ocean Matrix OMX-HDMI-1X4DA 1x4 Splitter 3D HDMI / Distribution Amplifier	189.90
Bill	03/27/2014	1132987	Markertek.com	KAN-HDEXT50M - KanexPro HDEXT50M Extends HD Signals over Single CAT 5e/6 up to 165ft (50m)	218.85
Bill	03/27/2014	1132987	Markertek.com	HDMI-14-3 - TecNec HDMI Cable v1.4 Ethernet & 3D Type-A Male to Male - 3 Foot VENDOR ADVISED ...	82.90
Bill	03/27/2014	1132987	Markertek.com	Freight	50.00
Bill	05/01/2014	0099257	Advanced Logic Industries, Inc	HP Workstation 2230 E2A59UT#ABA	25,155.06
Bill	05/01/2014	0099257	Advanced Logic Industries, Inc	HP Compaq LA2405x A9P21A8#ABA	5,722.86
Bill	07/23/2014	2329201	Camcor, Inc	ELD4025 CEF ELD Series 30"x30" Fixed Height Com Table w/ CPU Holder and Surge Protector	4,880.00
Bill	08/14/2014	081414	STEM Carroll County Public Schools AP		2,313.76
Bill	04/25/2014	LL20844	CDWG	2954034 HITACHI CP-X2530WN PROJ 2700 LUM Mfg#: CP-X2530WN Contract: Fairfax County PS 4400004635	663.00
Bill	05/28/2014	MD17482	CDWG		398.27
Bill	06/23/2014	LK50548	CDWG	1359251 TRIPP USB 1.1 OVER CAT5 EXTENDER TAA Mfg#: U007-40M Contract: Fairfax County PS 44000...	48.00
Bill	06/23/2014	LK50548	CDWG	3080961 PEERLESS CEILING MOUNT KIT Mfg#: PRSS-UNV Contract: Fairfax County PS 4400004635	79.00
Bill	06/23/2014	LK50548	CDWG	3005639 SAMSUNG 46" PRO LED DISPLAY Mfg#: ME46C Contract: Fairfax County PS 4400004635	3,525.00
Bill	06/23/2014	LK50548	CDWG	ERGOTRON NEO-FLEX TILT WALLMNT UHD Mfg#: 60-612 Contract: Fairfax County PS 4400004635	276.00
Bill	06/20/2014	6005	KenNect Communications, LLC	Materials to provide and install 700' MM 6-strand Armored Fiber cable, and 19 each additional Ge...	2,316.58
Bill	06/20/2014	6005	KenNect Communications, LLC	Labor	3,650.38
Bill	04/28/2014	28337	See Our Sound	Atlas 35 Watt Mixer/Amp AA35	215.00
Bill	04/28/2014	28337	See Our Sound	Bogen Lay-in Ceiling Speaker CSD1X2	88.00
Bill	04/28/2014	28337	See Our Sound	UPS	35.00
Bill	04/08/2014	441160	The Whitlock Group	Smart Tech SB680 77" Diagonal Interactive Whiteboard	1,410.00

Bill	04/08/2014	441160	The Whitlock Group	Freight	110.00
Bill	07/08/2014	452244	The Whitlock Group	Smart Tech WC6D wireless adapter	179.10
Bill	05/01/2014	1690554752_	Wayfair Supply	NP1036 NP1036 National Public Seating Height Adjustable Stool with Adjustable Backrest (#6424B) ...	1,103.00
Bill	05/01/2014	1690554752_	Wayfair Supply	HA1063 Holsag Carlo Stacking Classroom Chair in Beachwood (Carlo Stacking Chair - Black/Natural)...	1,574.00
Bill	05/01/2014	1690554752_	Wayfair Supply	BS1346 Best-Rite 4' x 6' Platinum Reversible Markerboards (669RG-HH) Material: Dura-Rite Markerb...	514.72
Bill	05/23/2014	1690554752-z	Wayfair Supply	VR3890 Virco 2000 Series 31" Laminate Chair Desk () Desk Finish: Medium Oak; Frame Finish: Char ...	3,613.00
Total Furniture/Fixtures					60,446.88
Bill	04/01/2014	48714139 RI	Carolina Biological Supply Company	292142 GENERAL BIOLOGY SLIDE SET	972.78
Bill	04/02/2014	48715630 RI	Carolina Biological Supply Company	216292 MULTI MINI W/0.5 ML BLOCK-115V- 4 week direct ship delivery on this item	2,849.95
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	213624 CA CLG ELECTROPHORESIS EQUIP	7,694.96
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	706706 BURNER, BUNSEN, FEDERAL SPECS	191.90
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	214072 REVOLUTIONARY SCI CENT RS-102	275.27
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	701012 CAROLINA HOT PLATE/STIRRER	3,411.40
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	701075 MIXER,VORTEX, UNIV. HEAD,	2,394.00
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	701296 INCUBATOR, LAB, 0.7 CU FT.	333.45
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	717850 KIT, LABWARE, BASIC PKG,	2,334.10
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	186009 PHMETER,HANNA,ALL IN ONE,W/STR	1,192.50
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	702017 BALANCE, CAROLINA, SLB302	3,496.90
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	213682 TRANSILLUMINATOR UV LIGHT 110V	923.36
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	665413 DIGITAL SOIL TEST KIT	299.20
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	665404 TEST KIT,RAPITEST SOIL	93.85
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	215595 DELUXE STAINING TRAY	84.20
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	850120 BROMOTHY BLU CAPSULES 5PK	70.02
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	861283 FL-ETHANOL 95% 3.8L	46.42
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	211162 EZ GENE SPLICER 8 STN	162.41
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	706360B EXAM GLOVE,LATEX,POWDERED,MED	15.74
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	706360C EXAM GLOVE,LATEX,POWDERED,LRG	15.74
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	706360D EXAM GLOVE,LATEX,POWDERED,XL	15.74
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	646704B SM/LG SAFETY GOGGLE VALUE PK20	108.16
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	713044 PARAFILM(R), 2IN, ROLL/250FT	119.25
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	821046 COLLEGE NUTRIENT AGAR MEDIKIT	145.26
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	629004 PAN, ALUM DISSECT, W/PAD,13x9"	292.40
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	621103 DISSECTING SET,STUDENT,SET III	230.00
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	716594 BOTTLE, WASH, WIDE, 500ML, EA	93.00
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	898890 YEAST ACTIVATED PWD 100G	18.38
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	894720 SINGLE DISP PH 1-14	106.80
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	647008 AG.AB.CLEANUP PADS,15X19,PK100	224.26
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	701700 DISTILLER, FILTER-TYPE, EACH	565.15
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	701700A FILTER, DISTILLER REPLACEMENT	148.26
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	591976 STEREOMICRO, WOLFE(R),PROZOOM	5,625.00
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	591407 MOTICAM, MOTIC, 1SP	314.97
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	292142 GENERAL BIOLOGY SLIDE SET	648.52
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	631960 CAROSLIDE SET,BX72 +CVRS	169.30
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	215066 MICRO TIP 215128 .5-10 PK96	186.00
Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	653303 CAROLINA(R) SPECTROPHOTOMETER - 4 week direct ship delivery on this item	879.94

Bill	04/03/2014	48716672 RI	Carolina Biological Supply Company	Freight	847.25
Bill	04/04/2014	48717621 RI	Carolina Biological Supply Company	646842 ULTRAVIOLET STERILIZATION - 4 week direct ship delivery on this item	536.94
Bill	05/07/2014	48757346 RI	Carolina Biological Supply Company	199736 PURAIR 5, 36" WIDE- 6 week direct ship delivery on this item	2,992.46
Bill	05/14/2014	48764345 RI	Carolina Biological Supply Company	701650 AUTOCLAVE, TUTTNAUER, EZ10-6 week direct ship delivery on this item	5,698.57
Bill	06/02/2014	48769778 RI	Carolina Biological Supply Company	592011 MICROSCOPE,DIGIVU,SM3.0,STEREO	755.10
Bill	06/11/2014		Carolina Biological Supply Company	653342 TEST TUBE CUVETTES, 12PK	85.42
Bill	06/10/2014	615680	DISYS Solutions, Inc	WS-C3560X-24P-S Catalyst 3560X 24 Port PoE IP Base	3,162.00
Bill	06/10/2014	615680	DISYS Solutions, Inc	C3KX-NM-1G Catalyst 3K-X 1G Network Module option PID	310.00
Bill	07/09/2014	616080	DISYS Solutions, Inc	GLC-SX-MMD= 1000BASE-SX SFP transceiver module MMF 850nm DOM	310.00
Bill	05/20/2014	2488700	Ferguson Enterprises, Inc	OFGPRST750500	74.79
Bill	05/20/2014	2488700	Ferguson Enterprises, Inc	PFGPFST750	69.65
Bill	05/20/2014	2488700	Ferguson Enterprises, Inc	IBRCDC	6.95
Bill	05/20/2014	2488700	Ferguson Enterprises, Inc	Freight	16.05
Bill	05/21/2014	2488592	Ferguson Enterprises, Inc	OFGPCS750250	76.85
Bill	05/21/2014	2488592	Ferguson Enterprises, Inc	REC31431	15.27
Bill	04/21/2014	5132837	Vernier Software & Technology	LQ2-AG-DLX AG SCIENCE LABQ2 DLX PKG 10 LABQ2 VERNIER LABQUEST 2 10 TMP-BTA STAINLESS STEEL...	14,880.00
Bill	04/21/2014	5132837	Vernier Software & Technology		99.00
Total lab equipment/supplies					66,684.84
Grand Total					545,636.02

