3-4-2014

Second-Grade Science Collaborations: Exploring States of Matter, Forces, Motion, and Energy

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Second Grade Science Collaborations

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How college faculty and students worked together with Elementary School faculty and students to…

explore states of matter, forces, motion, and energy through classroom exercises and hands-on activities!

How to build a science collaboration

We have developed a series of hands-on activities that link to the science standards

Handouts available at:

http://mako.nova.edu

Log on using
Username = g.eschmitt
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independent research eschmitt
NSTA Teaching Science with
Confidence!

How this collaboration developed

Family

Profession

How this collaboration developed

- College science professor was also the parent of an incoming Kindergarten student
- This parent asked what she might be able to do at the school in her role as college science professor
- There would be a person excited to support science in every school community
- Added plus to work with college students because they are energetic and need experience!

Family

College Students

Schools

Faculty

Alexander Lavin, Grade 4 (March 2014)

Hands-on Activities that foster a joy of learning and discovery!

Activities that resulted

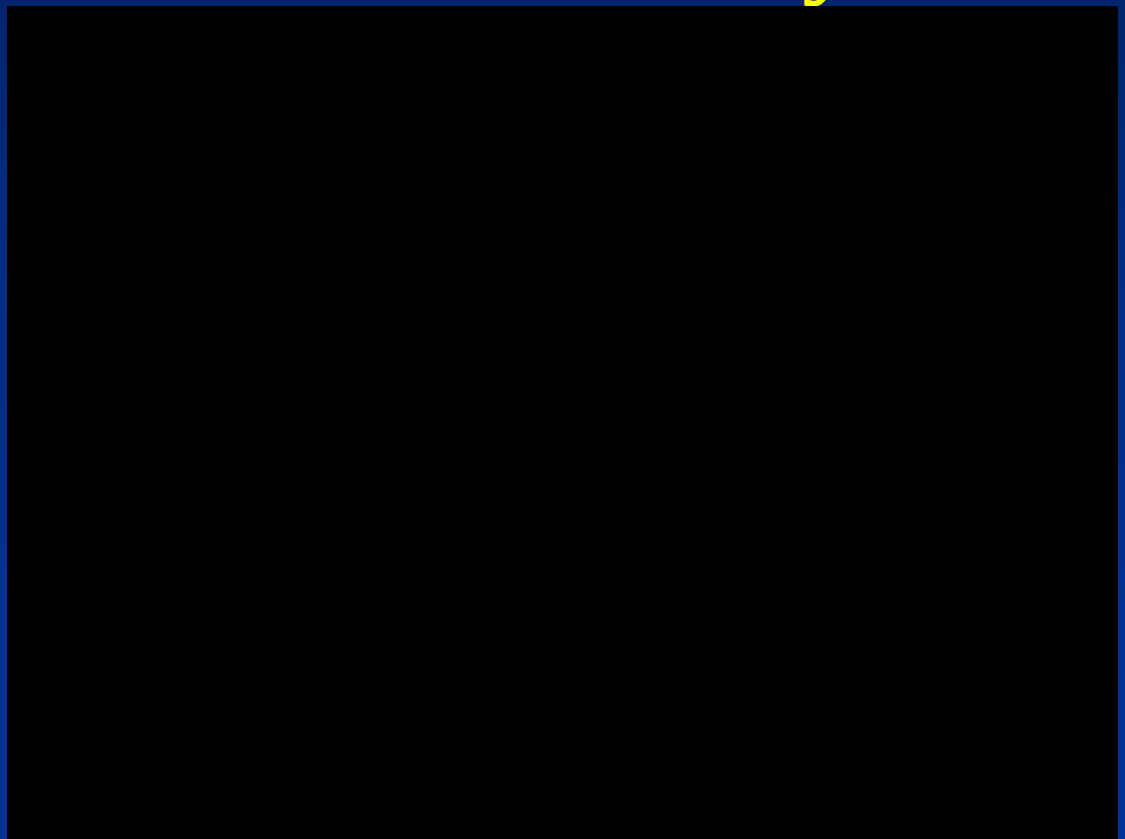
- Family science nights (five years)
- Second grade collaborations (three years)
  - Matter Day
  - Forces, Motion and Energy Day
- Third grade activities (one year)
  - Plant structure and function Day
  - Classification Day
- Fourth grade activities (one year)
  - Geology-Fossils Day

Key components of collaboration

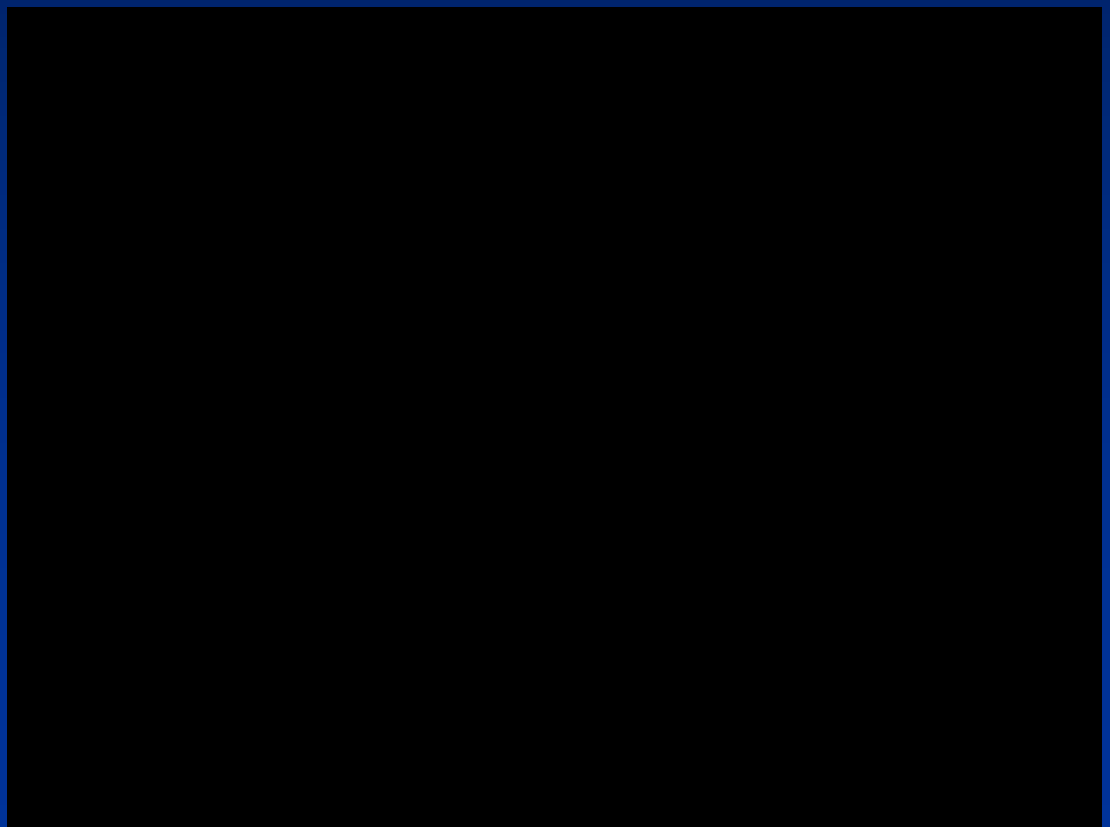
- Interested teacher and administration
- Interested community member
- Good communication
- Appreciative attitudes

The collaboration is good for Elementary school teachers and administrators

Working with second grade teacher
Ms. Cassie Hughes,
Welleby Elementary School,
Broward County, FL



Working with administration
Ms. Kim Baston,
Welleby Elementary School,
Broward County, FL



Matter Day

- Smoky Bubbles
- Flubber
- Corn Starch Mix

Smoky Bubbles

Gas filled (CO_2) Smoky Bubbles

Information for Parents

Compiled by: Dr. Emily Schmitt Lavin eschmitt@nova.edu; Nova Southeastern University (NSU)
Biology Associate Professor and Welleby parent
Kelly Parks, NSU Oceanographic Center Graduate Student;
Erin Nassif, NSU Marine Biology Student

MATERIALS:

- Plastic jar with lid; fitted with a valve connected to plastic tubing with a nozzle on the end
- 1 pair of cotton gloves
- 1 (9oz.) plastic cup
- 1 bottle of dish soap
- Tongs
- Dry ice in a cooler

METHODS:

1. Fill the specially made plastic jar about 1/3 full of warm water.
2. Using gloves and tongs add several pieces of dry ice.
3. Put the lid on the plastic jar. **Never put dry ice in a jar and close the lid UNLESS there is another opening in the jar for gas to escape through.**
4. Watch the carbon dioxide (CO_2) gas release from the dry ice in the water.
5. Put the end of the tube with the hose fitting into the dish soap and watch as the bubbles fill with smoky gas.

HYPOTHESIS:

Why was the gas cloudy? What happened to the cloudiness as time went on?

OBSERVATIONS:

At first when the dry ice is added to the warm water a lot of cloudy CO_2 gas is generated. This gas is used to blow up the soap bubbles. Over time the gas gets less cloudy.

SCIENTIFIC PRINCIPLES:

Dry ice is very cold carbon dioxide that has become a solid. As the dry ice melts carbon dioxide is released in the form of a gas. When the carbon dioxide gas is colder than the air, it has a smoky consistency like fog. When the carbon dioxide gas is warmer than the air, it becomes colorless and the fog-like quality goes away. When the bubbles pop, the cold carbon dioxide gas is released into the air in a foggy release of smoke.

FURTHER INVESTIGATIONS:

More information available at:
http://www.bubbles.org/html/solutions/formulae.htm
http://www.stevespanglerscience.com/product/boo-bubbles

Corn Starch Mix

Corn Starch Mix: A solid that melts?

Information for Parents

Compiled by: Dr. Emily Schmitt Lavin eschmitt@nova.edu; Nova Southeastern University (NSU)
Biology Associate Professor and Welleby parent
Collette Gilbert and Megan Flora, NSU Oceanographic Center Graduate Students;
Patrick Cao, NSU Biology Student

MATERIALS:

One box of cornstarch (16 oz)	Spoon
Large mixing bowl	Gallon size zipper-lock bag
Cookie sheet	Paper table cloth
Pitcher of warm water	Food coloring (personal reference)

METHODS:

1. NOTE: **Do NOT pour this mixture down the sink.** It must be thrown away in the trash so it does not clog the plumbing.
2. Pour approximately ¼ of the box of corn starch (4 oz) into the mixing bowl and slowly add about ½ cup of water and stir (or use your bare hands).
3. Continue adding cornstarch and water in small amounts until the mixture reaches the consistence of honey; eventually, you will have added the box of corn starch with roughly 1 to 2 cups of water. The mixture gets thicker with more cornstarch and thinner with more water. Add food coloring as desired.
4. Pour the mixture onto the cookie sheet. Stir it with your finger first slowly then faster and observe.
5. Skim your finger across the top and observe.
6. Sink your hand into the mixture and try to pull it up.
7. Roll the fluid between your palms (applying pressure) and make a ball.
8. Place your hand over top of the pan of liquid and slap it as hard as you can. What happens?

HYPOTHESIS:

Why did the solution become a solid under pressure and a liquid when the pressure was released?

OBSERVATIONS:

This liquid does not behave like a normal liquid. It became more solid under some situations and appeared to melt and become more liquid under others.

SCIENTIFIC PRINCIPLES:

This corn starch solution is something known as a Non-Newtonian liquid. It turns into a solid under pressure and a liquid in the absence of pressure. This happens due to the specific nature of the bonding between the corn starch molecules and the water.

FURTHER INVESTIGATIONS:

More information available at: http://www.stevespanglerscience.com/experiment/00000047

Flubber

Flubber From Liquid to Semi-Solid

Information for Parents

Compiled by: Dr. Emily Schmitt Lavin eschmitt@nova.edu; Nova Southeastern University (NSU) Biology Associate Professor and Welleby parent
Jeff Ellis, NSU Oceanographic Center Graduate Student; Andre Kerr NSU Alumnus, and Jennifer Marrero, NSU Biology Student

MATERIALS:

- Glue (4 oz bottle)
- Borax (a powdered soap from grocery stores)
- Plastic cup (8 oz)
- Spoon
- Large mixing bowl
- Measuring cup
- Food coloring (personal preference)
- Water
- Paper towels
- Plastic zipper-style storage bags

METHODS:

1. Empty the entire glue bottle into the mixing bowl.
2. Fill the empty glue bottle with warm water (close and shake) then empty the contents into the mixing bowl and mix well using the spoon.
3. If desired, add a few drops of food coloring to the glue and water mixture.
4. Measure ¼ cup of warm water into a plastic cup and add a one half teaspoon of Borax powder to the water. Stir the solution; dissolving as much of the powder as possible.
5. While stirring the glue in the mixing bowl, slowly add the Borax solution and you will see the glue start to polymerize into a gel-like solid.
6. Continue adding Borax solution and begin to mix with hands until the desired consistency is reached
7. Store the flubber in a plastic bag.

HYPOTHESIS:

Why did the glue change from a liquid to a gel like solid? What effect does Borax have on glue? What do you think would happen if you kept adding more and more Borax?

OBSERVATIONS:

When the Borax solution is added to the glue, the molecules in the glue are encouraged to change states from a liquid to a gel-like solid.

SCIENTIFIC PRINCIPLES:

Borax serves a polymerizing agent. That means that it causes the glue to form a polymer (long chain of molecules). Thus, by adding the Borax the glue transitions from a liquid to a gel-like solid state.

FURTHER INVESTIGATIONS:

http://www.stevespanglerscience.com/experiment/00000039

Forces, Motion and Energy Day

- Salt Racers
- Sticky Rice
- Lightsaber Training
- Electric Gelatin
- Lift Off
- Straw Oboe

Salt Racers

Salt Racers!

Information for Parents

Compiled by: Megan Flora, Nova Southeastern University (NSU) Oceanographic Center Graduate Student and Dr. Emily Schmitt Lavin eschmitt@nova.edu; NSU Biology Associate Professor and Welleby parent

MATERIALS:

Plastic test tube with cap
Salt
Marbles

METHODS:

1. Fill the test tube ¾ of the way with the salt
2. Place a marble on top of the salt in the test tube
3. Place the cap on the test tube and try to get the marble to the other end by flipping the tube upside down so the marble is now under the salt.
4. Shake the tube and watch what happens to the marble!

HYPOTHESIS:

Will the marble sink or stay on top of the salt when it is first placed in the test tube? Do dense objects like the marble always fall to the bottom? What will happen to the marble if we turn the tube upside down and start with it on the bottom?

OBSERVATIONS:

When the marble is on the bottom of the salt, the shaking causes both the salt and the marble to lift up farther. However, the marble travels faster than the salt and ends up on top of it. The marble wins the "race" and ends up on the other end, on top of the salt.

SCIENTIFIC PRINCIPLES:

Shaking the tube causes the salt and the marble to jump up and travel at the same, fast speed. The salt slows down more quickly than the marble because of the friction between the salt particles. This allows the marble to jump up on top of the salt even though it is more dense!

FURTHER INVESTIGATIONS:

More information available at (also source of photo):
http://www.stevespanglerscience.com/experiment/00000065 (source of image)

Sticky Rice

Sticky Rice!

Information for Parents

Compiled by: Megan Flora, Nova Southeastern University (NSU) Oceanographic Center Graduate Student and Dr. Emily Schmitt Lavin eschmitt@nova.edu; NSU Biology Associate Professor and Welleby parent

MATERIALS

- 2 plastic soda bottles or small plastic tubes (avoid glass so as not to hurt yourself)
- Enough dry rice to fill the bottles (depending on their size)
- 2 chopsticks or sharpened pencils
- A tray or a bowl

METHODS:

1. Label 1 bottle "lite rice" and the other bottle "regular rice"
2. Fill both bottles almost all the way with rice, leaving about an inch at the top
3. Shake the "regular rice" bottle to fluff up the rice and continue to pack down the rice and refill it to the top.
4. Stick one chopstick in the "lite rice" bottle and another in the "regular rice" bottle.
5. Gently lift both bottles using the chopsticks and watch as the "lite rice" bottle magically lifts up!

HYPOTHESIS:

What happens when you continually fluff and pack the rice in the "regular rice"? Will both bottles be lifted by the chopstick or just one?

OBSERVATIONS:

The rice does not move up in the bottle to make room for the chopsticks the same way a liquid would. The rice actually moves to the sides of the bottle to become further packed in.

SCIENTIFIC PRINCIPLES:

The chopsticks are squeezed between the rice and the sides of the bottle with nowhere else to move. The rice against the chopsticks causes friction. This means that the chopsticks do not slide against and the rice and "stick" to it so that they can work together to lift the bottle as if there were glue or tape attached.

FURTHER INVESTIGATIONS:

More information available at:

Lightsaber Training

Lightsaber Training

Information for Parents

Compiled by: Doxia Trinidad, Nova Southeastern University (NSU) Biology Major
Dr. Emily Schmitt Lavin eschmitt@nova.edu; Nova Southeastern University Biology Professor and Welleby parent

MATERIALS:

- 1 inch (2.5 cm) wide PVC Pipe about 24 inches (60cm) long. You can also use a regular balloon if you do not have PVC pipe; Scissors
- Mylar tinsel for Christmas trees. There are many types of tinsel (you should look for the thinnest and narrowest possible); A head of clean, dry hair (or a piece of wool or a fuzzy polyester blanket)

METHODS:

1. Arrange 6 strands of Mylar together and tie them together in a knot at one end.
2. Tie them together again about 6 inches (15cm) from the first knot.
3. Cut the loose Mylar strands off just past each knot.
4. Charge the PVC pipe by rubbing it back and forth through your hair (blanket or wool) for 10 seconds.
5. Hold the Mylar orb (by the knot) above the charged pipe and let it drop and touch the pipe.
6. It should repel away and start floating. If the tinsel keeps sticking to the pipe, the tinsel is probably not thin enough and you will need to try another kind of tinsel. (You will usually have to "recharge" the pipe before each levitation.) You must practice, be calm, and learn to use the force for this to work!

HYPOTHESIS:

When the electrical charge between the PVC pipe and orb is the same, the orb will repel away from the PVC pipe. What would happen if the orb was larger, made out of a different material, or if the material to charge the pvc was not dry or had a lot of oil? Could the weather affect this force attraction?

OBSERVATIONS:

When you rub the pipe in your hair you give the pipe a *negative* static charge. The orb is attracted to the pipe at first because the orb has a positive charge. As soon as the orb touches the pipe, it picks up a negative charge. Since the pipe is negative and the tinsel orb is now negative, they repel away from each other and the orb levitates! The orb will also take on more of a "ball" appearance when charged since all the tinsel strands are repelling away from each other. Did you notice the orb is attracted to other objects around you - including you? That is because most objects (including you) have a positive charge.

SCIENTIFIC PRINCIPLES:

Static electricity is an electric charge that has accumulated on an object. Static electricity is often created when two objects that are not good electrical conductors are rubbed together, and electrons from one of the objects rub off onto the other. In this experiment, the PVC pipe and the orb had the same electrical charge, therefore, they repelled each other, making it seem like it is levitating.

FURTHER INVESTIGATIONS:

More information available at:
http://www.youtube.com/watch?v=9toZ3fwzv_o
http://www.sciencebob.com/experiments/static_orb.php , original image (above) by E. Schmitt Lavin

Electric Gelatin

Electric Gelatin!

Compiled by: Dr. Emily Schmitt Lavin eschmitt@nova.edu; Nova Southeastern University (NSU)
Biology Associate Professor and Welleby parent; Jaibel Makiyil, NSU Biology Student

MATERIALS:

- Balloon
- Unflavored gelatin powder
- Paper Plats
- Wool scarf, sweater or fleece pajamas or a fuzzy blanket

METHODS:

1. Empty a handful of gelatin powder onto the paper plate.
2. Blow up the balloon and tie it closed.
3. Rub the wool scarf, sweater or fleece pajamas on the balloon for 20 seconds
4. Hold the area that you rubbed on the balloon an inch away from the gelatin
5. Try to slowly move the balloon up or to the sides

HYPOTHESIS:

What happened to the gelatin powder when the rubbed balloon was above it? What happened to the powder when the rubbed balloon was moved the sides or raised up? What is the purpose of the wool scarf, sweater or fleece pajamas in this experiment? Why must you rub the balloon before the balloon can move the gelatin powder?

OBSERVATIONS:

When the balloon was held over the gelatin powder it rose up to touch it. When the balloon was moved, the powder followed the balloons movement.

SCIENTIFIC PRINCIPLES:

When the balloon is rubbed with the wool scarf, sweater or fleece pajamas, electrons will "jump" onto the balloon giving the area the balloon was rubbed a negative charge. When the balloon is brought over the gelatin powder, the positive areas in the powder are attracted to the negative charge of the balloon. This attraction is so strong the gelatin powder rises to touch the balloon.

FURTHER INVESTIGATIONS:

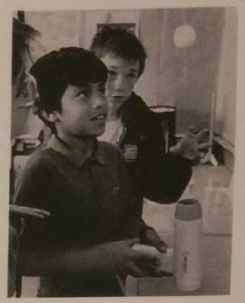
More information available at:

http://pbskids.org/zoom/activities/sci/electricgelatin.html (also source of image)

http://www.sciencemadesimple.com/static.html

Lift Off

Lift Off!



Information for Parents

Compiled by: Megan Flora, Nova Southeastern University (NSU) Oceanographic Center Graduate Student and Dr. Emily Schmitt Lavin eschmitt@nova.edu; NSU Biology Associate Professor and Welleby parent

MATERIALS

- Hairdryer
- Balloon or ping pong ball
- Tissue paper

METHODS:

1. Turn hairdryer on and turn it with the airflow facing upwards
2. Place the tissue paper above the airflow and watch as it blows away from the stream
3. Now place the ping pong ball or balloon above the airflow and watch as it steadies itself and remains there floating!

HYPOTHESIS:

What happens when you put the light weight tissue paper over the airflow? What will happen when the heavier ping pong ball is placed there? Why does the ping pong ball move up and down when first placed over the airflow?

OBSERVATIONS:

The tissue paper just blows away without stabilizing itself over the airflow of the hairdryer. When the ball is placed near the airflow, you can feel the pressure of it being sucked back in. After being placed directly over the hairdryer, the ball moves up and down before stabilizing, but it does not blow away like the tissue paper.

SCIENTIFIC PRINCIPLES:

An area of high pressure comes up from the hairdryer and slows down when it hits the ball. The airflow then continues around the ball and causes the ball to move against gravity and float above the hairdryer. When the ball is placed halfway outside of the stream, a principle known as Newton's Law of Action and Reaction causes the pressurized air to interact with the calm air, which pushes it back into the hairdryer.

FURTHER INVESTIGATIONS:

More information available at (also source of photo):
http://www.exploratorium.edu/snacks/balancing_ball/

Straw Oboe

Straw Oboe!

Information for Parents

Compiled by: Megan Flora, Nova Southeastern University (NSU) Oceanographic Center Graduate Student
and Dr. Emily Schmitt Lavin eschmitt@nova.edu: NSU Biology Associate Professor and

MATERIALS

- Soda straw
- Scissors

METHODS:

1. Bite down on the end of the straw to flatten it
2. Cut off the straw on both of the flattened ends, into a V-shape
3. Bite down on the straw and blow hard and soft and see what noises you can make with the straw
4. Your lips should be pressed together just at the far end of the V (far from your mouth).
5. If you want, punch holes in the straw for your fingers; also try cutting the end of the straw to see what happens to the sound

HYPOTHESIS:

What happens when you blow on the straw hard? What happens when you blow into the straw more softly? What does the straw sound like with more pressure or with less pressure from biting down? What happens if you cut the straw from the end away from your mouth? What if you cut it again?

OBSERVATIONS:

The air inside of the straw is bouncing around and causing the vibrations. Why do you think these vibrations are able to make the sound you are hearing?

SCIENTIFIC PRINCIPLES:

When the air travels down the straw, it moves at the speed of sound and is forced to bounce off the opposite end. The sound then continues back to the flattened end of the straw where it bounces off again and again causing the vibration and noise.

FURTHER INVESTIGATIONS:

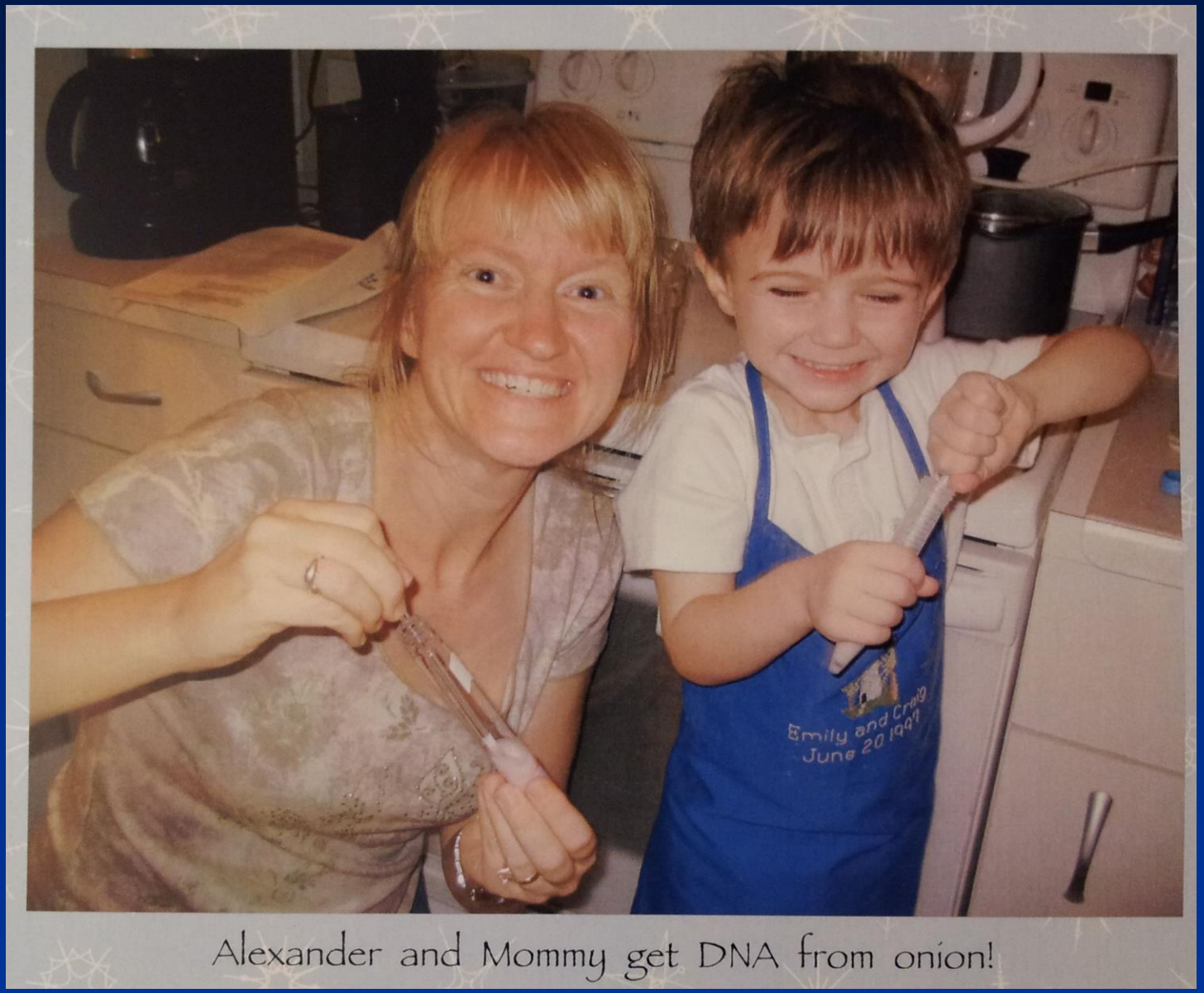
More information available at:

http://www.exploratorium.edu/snacks/straw_oboe/
http://www.instructables.com/id/Straw-horn/

What this collaboration means for second graders

Science Alive! fills a need for children, teachers, college students, faculty, and the community.

Children are naturally curious scientists.



Alexander and Mommy get DNA from onion!

College students struggle to explain science concepts and need practice public speaking.

A great match!

Practicing in the College Science Lab

Science is Fun!

College Students Excited!

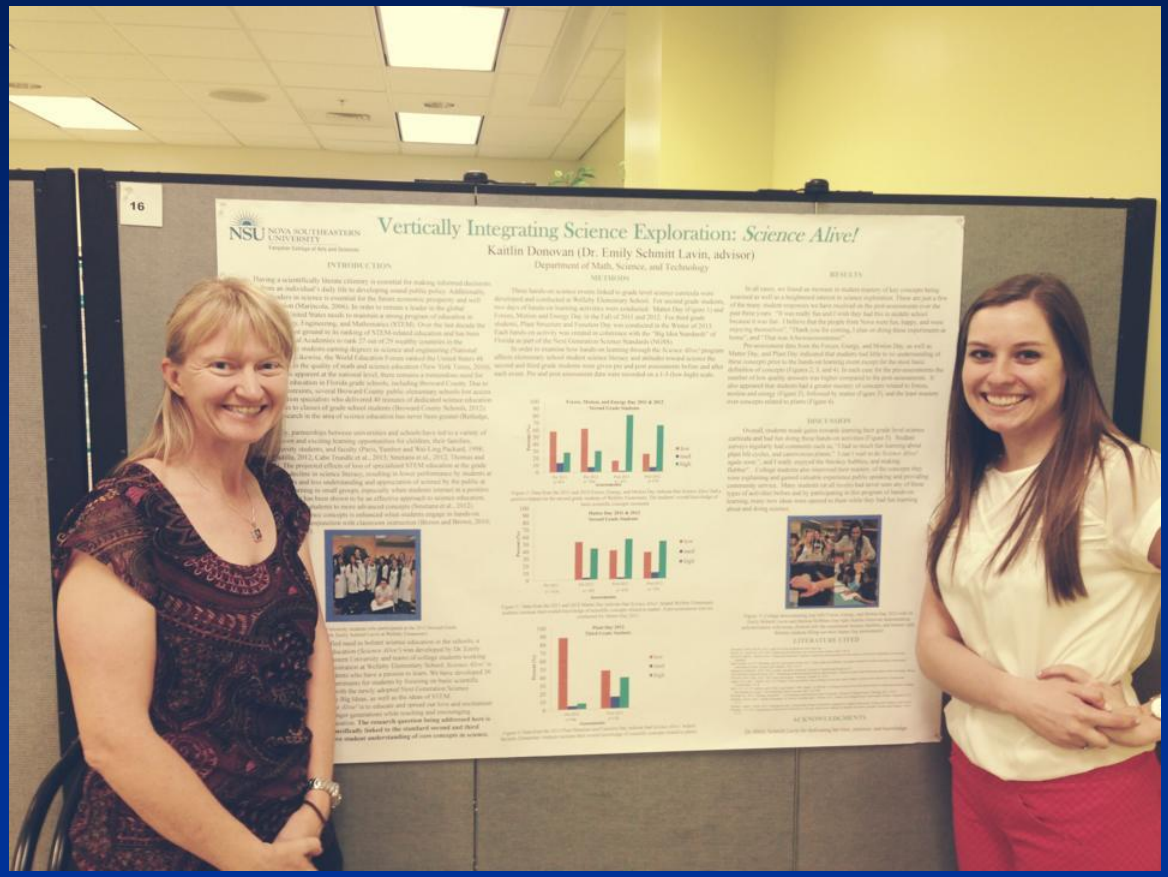
What this collaboration means for college students


NSU

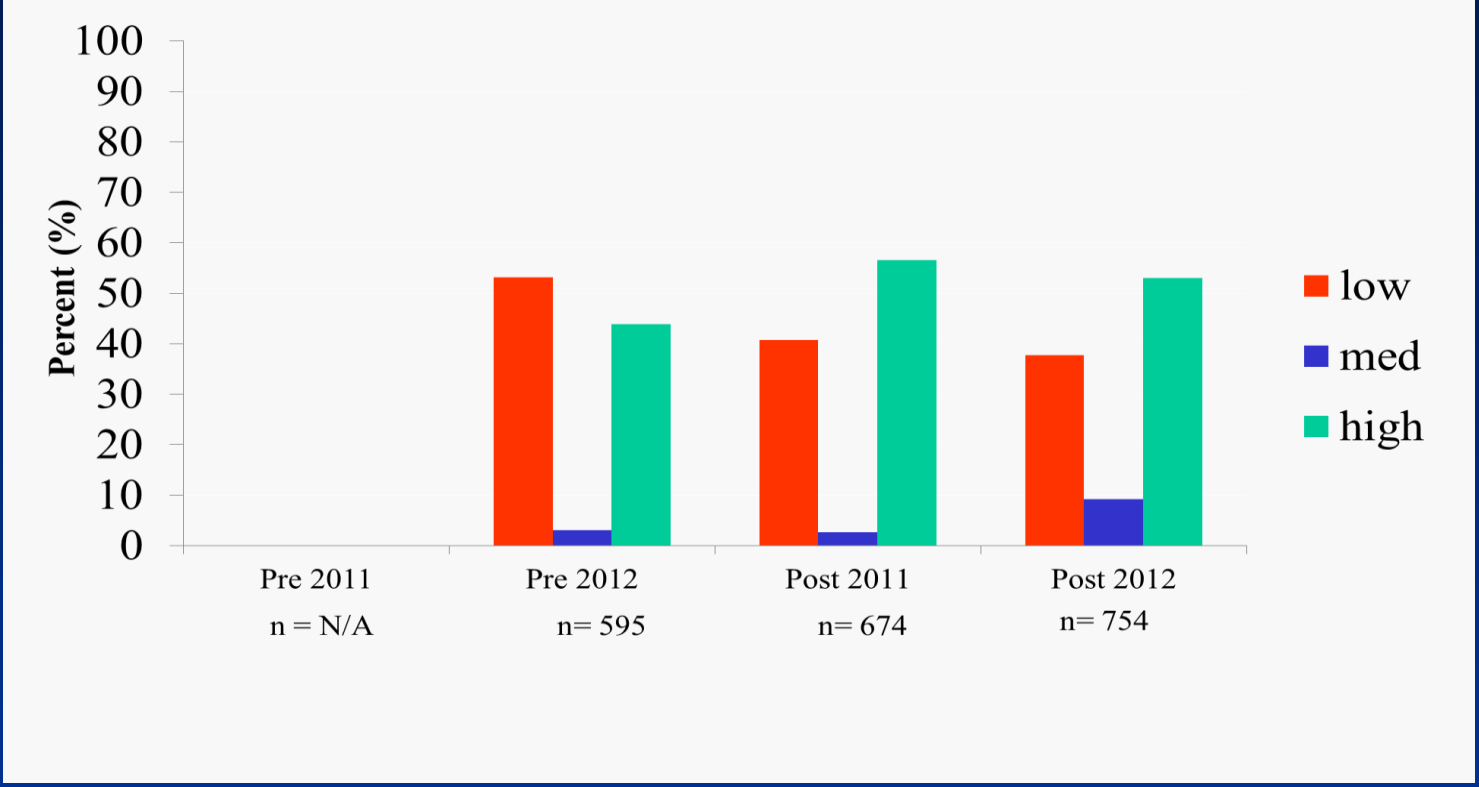
What this collaboration means for college students

Kaitlin Donovan, Class of 2014; entering Tufts Dental School

College Students: Attending Conferences

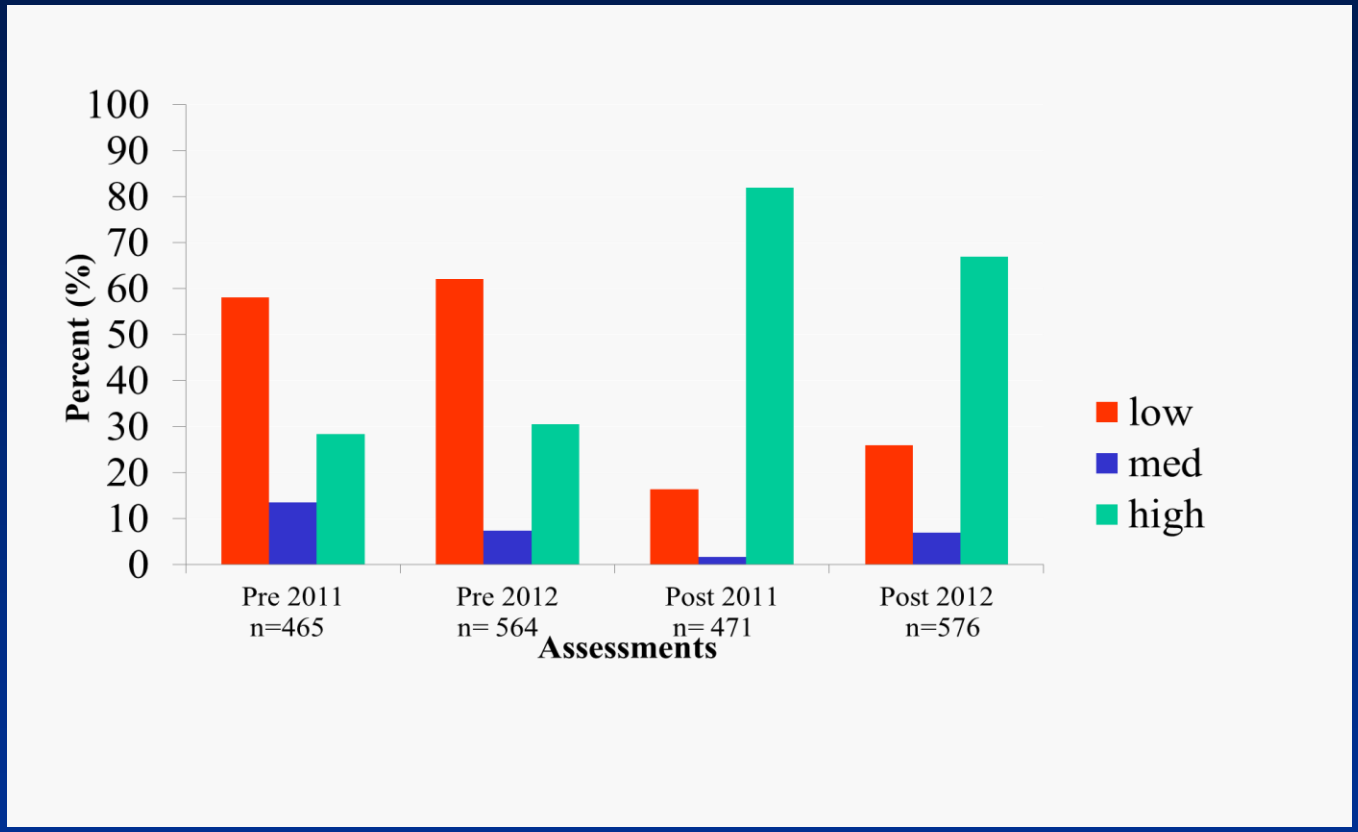


Elementary Students are Learning



Data from the 2011 and 2012 Matter Day indicate that *Science Alive!* Helped Welleby Elementary students increase their overall knowledge of scientific concepts related to matter. A pre-assessment was not conducted for Matter Day 2011.

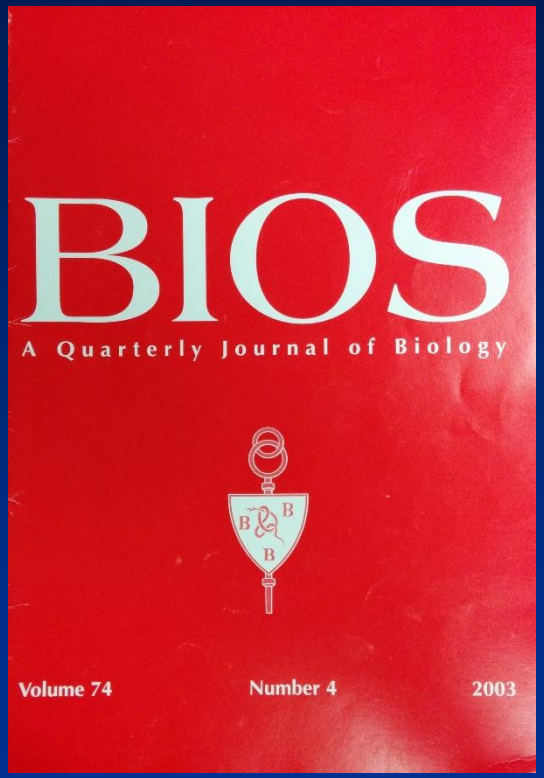
Elementary Students are Learning



Data from the 2011 and 2012 Forces, Energy, and Motion Day indicate that *Science Alive!* had a positive impact on the second grade students of Welleby Elementary. The students' overall knowledge of basic scientific concepts increased.

Kaitlin Donovan, Class of 2014; entering Tufts Dental School

Service Learning as a Meaningful College Experience



Donovan, K. and E. Schmitt. Service learning in science education: A valuable and useful endeavor for biology majors. (accepted Nov. 2013) Bios: Journal of the National Biology Honor Society, Beta Beta Beta.

Devin Rogers and Emeline Calligaris, NSU Undergraduate Students (2014)

DNA Necklaces are Fun!

Nancy Sarmiento — Teach for America
NSU Class of 2013

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nsunews.nova.edu/nsu-alumna-accep Reader Search

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Alumni News

NSU Alumna Accepted into Prestigious Teach for America Program

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NSU alumna Nancy Sarmiento

As an undergraduate biology major at NSU's Farquhar College of Arts and Sciences, Nancy Sarmiento spent time in the local community showcasing science to young minds. Now, as an NSU alumna, Sarmiento will teach biology to secondary-school students in Baltimore, Maryland through the Teach for America program. Over the next two years, Sarmiento will also earn her master's in education from Johns Hopkins University, receiving full scholarship in exchange for her service as a teacher.

"I first heard about this opportunity through a family member who is also a Teach for America member in New York," said Sarmiento, who graduated from NSU in May 2013. "I wanted to expand my horizons and try something new and different before actually heading to medical school."

After applying for the competitive program, Sarmiento underwent an extensive interview process, which included a live teaching demonstration in front of other interviewees. Sarmiento said she naturally chose to showcase "Salt Racers"—an experiment she taught several times during NSU's annual *Science Alive!* event at Welleby Elementary School in Sunrise.

With "Salt Racers," Sarmiento challenges her audience members to move a marble to the top of a tube filled with salt, using the power of friction. Sarmiento learned the experiment from her faculty mentors Joshua Loomis, Ph.D., assistant professor at the college, and Emily Schmitt, Ph.D., associate professor and coordinator of biological science at the college, who organizes *Science Alive!* each year.

As an official member of Teach for America, Sarmiento will spend this summer training in Philadelphia, and then head to Baltimore to begin teaching biology in August.

"I am excited to be teaching a subject that I am so passionate about to a group of students who may have never come across it before," said Sarmiento. "I am excited to inspire some of them, so that they may see the beauty in science and how it is everywhere in the world around us."

What this collaboration means for college faculty

Dr. Aarti Raja, Assistant Professor
Nova Southeastern University

Professionals can bolster the K-12 school system, by sharing their profession and passion.

The

Nova Sharks

are here!

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SCIENCE

MATTERS

at

Welleby

Welleby Elementary School

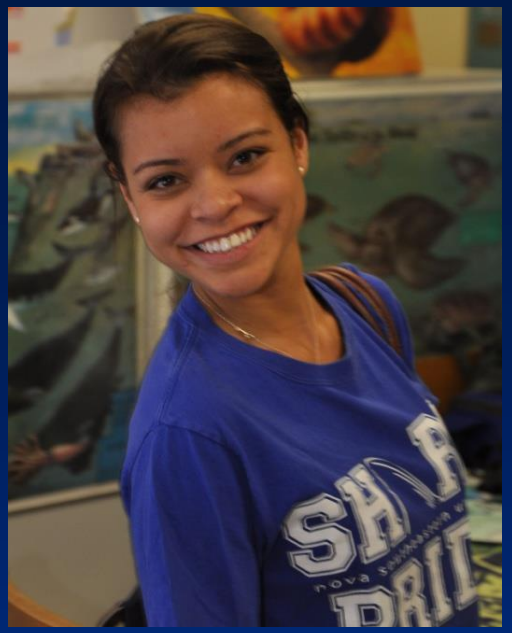
Welleby Elementary School




Welleby Teachers




Learning and Sharing



Role Models

April 1, 2011

Dear NSU students:

Thank you for coming last night to the science alive, I had so much fun watching all those cool and amazing experiments. It was really cool how the strawberry made light. Also, the dancing raisins were awesome. I really liked the taster-vs-nontaster, the egg spin, and the friction-balloon. Everything was really cool. We appreciate your time. We hope to see you all again.

Sincerely,
Priscilla

Science Rocks!

You Rock!

Youre Awesome

THANK YOU!

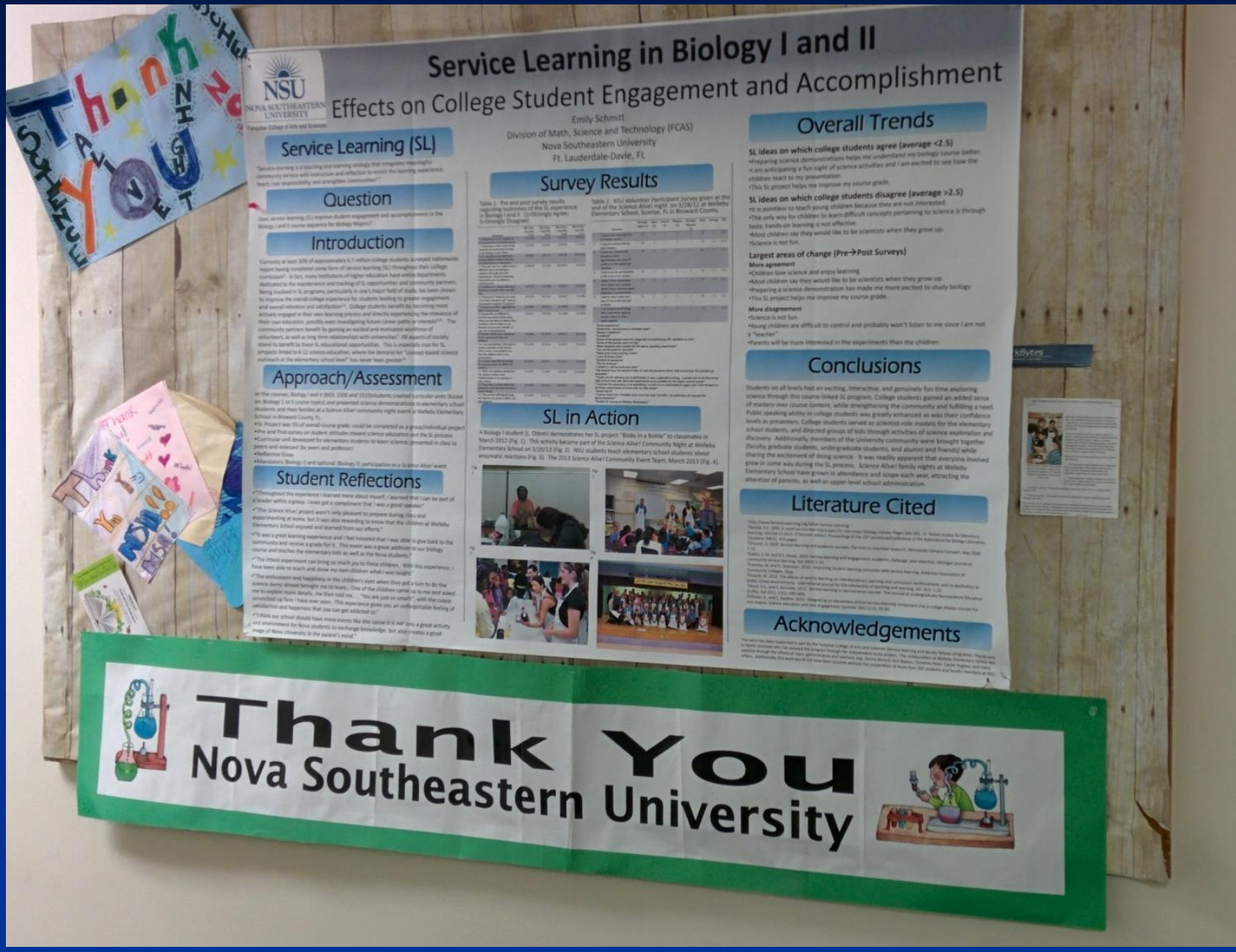
April 1, 2011

Dear NSU Students:

Thank you for coming the Elementary. I Science Alive at our school, We'll be had so much fun watching the Science Projects you showed us last night. My family and I had such a great time! I loved all of the projects you showed. I loved the project were you made strawberry lights. I never knew that you could light a light bulb with a strawberry. I can't wait till next year!

Sincerely, Lauren

I LOVE SCIENCE!


Thank You
Nova Southeastern University
Service Learning in Biology I and II
Effects on College Student Engagement and Accomplishment
NSU
NOVA SOUTHEASTERN UNIVERSITY
Emily Schmitt
Division of Math, Science and Technology (FCAS)
Nova Southeastern University
Ft. Lauderdale-Davie, FL
Service Learning (SL)
Question
Introduction
Approach/Assessment
Student Reflections
Survey Results
SL in Action
Overall Trends
Conclusions
Literature Cited
Acknowledgements

In the news…

- Welleby Elementary School website

http://welleby.browardschools.com/index.php?option=com_content&view=article&id=28884&Itemid=43826

- Nova Southeastern University website

http://nsunews.nova.edu/nsu-students-alumni-bring-science-life-local-elementary-school/

- Facebook site

https://www.facebook.com/Novasciencealive

- Broward County Public School Newsletter

Central Area's Bits & Pieces Newsletter Vol. 11 April 2011

- Broward County Public Schools Community Involvement Awards (April 2013)

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Science Alive Nova Southeastern

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Bryce Parrish

This is a great program all Nova science students should get involved to benefit the community of future sci...

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Science Alive Nova Southeastern

Mar 20 ·

What was your favorite part of Science Alive Family Night?
Candy Predation...cube bubbles...rotocopters...DNA...Brains...Oh My what fun!

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NSU News and Events

- SSC Basketball Championships coming to NSU
  NSU will be hosting the BlueCross BlueShield of Florida Sunshine State Conference Basketball Championships on March 6-7 in the Arena at the Don Taft University Center

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NSU Welcomes Archbishop Desmond Tutu

Fri., February 26, 7:00 p.m.

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Community News

NSU Students, Alumni Bring Science to Life at Local Elementary School

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NSU students and alumni recently volunteered for the annual Science Alive! event at Welleby Elementary School in Sunrise.

More than 40 NSU students and alumni volunteered at Welleby Elementary School in Sunrise for the annual *Science Alive!* event on Mar. 20. The school-wide gathering featured an evening of interactive experiments and scientific demonstrations geared toward children and their families.

During *Science Alive!*, Welleby's classrooms are transformed into science labs, each showcasing a different experiment led by students from the Farquhar College of Arts and Sciences, NSU's Health Professions Division, and NSU's Oceanographic Center, as well as alumni and friends. More than 450 children and family members participated in the community event, Welleby's largest of the year.

Interactive demonstrations at this year's *Science Alive!* included

"Blobs in a Bottle"

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NSU Students Bring Science to Life at Local Elementary School

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(center) Calista Siobhan Ming, biology major in the Farquhar College of Arts and Sciences, prepares the "Foaming Fountain" experiment at the Science Alive! event.

More than 75 NSU students and alumni volunteered on Mar. 28 at Welleby Elementary School in Sunrise for Science Alive!, an evening of interactive experiments and scientific demonstrations geared towards children and families.

The event featured a series of science classroom stations, each showcasing different experiments led by students from the Farquhar College of Arts and Sciences, NSU's Health Professions Division, and NSU's Oceanographic Center. More than 450 children and their family members participated in the community event, Welleby's largest event of the year.

Interactive demonstrations at Science Alive! included the following:

- "Art and Science Liquid Kaleidoscope" (nail polish art on packing tape)—Participants used nail polish, water, and the principles of hydrophobic and hydrophilic interactions to create works of art.
- "Penny Pipetting"—Families competed to see how many drops of water could sit on a penny, and learned the science behind this capability.
- "Lightsaber Training"—Participants used static electricity ("The Force") to make a ball of tinsel levitate.
- "Foaming Fountain"— Participants witnessed an exothermic reaction involving yeast and hydrogen peroxide.

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Community News

NSU Students Bring Science to Life at Local Elementary School

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More than 35 students and alumni from NSU volunteered on Mar. 31 at Welleby Elementary School in Sunrise for Science Alive!, a night of interactive experiments and scientific demonstrations. The event featured a series of science stations, each showcasing a different experiment led by students from the Farquhar College of Arts and Sciences, NSU's Health Professions Division, and NSU's Oceanographic Center.

NSU students volunteered at Welleby Elementary School in Sunrise for Science Alive! making science fun with a showcase of interactive experiments.

About 400 children and their family members participated in the community event, making it Welleby's largest event of the year. Interactive demonstrations at Science Alive! included the following:

"Strawberry Power"—using strawberries to make an LED light up

"Eggshell Support"—using the rounded end of eggshells, arranged in a square, to see how many books the shells can support before breaking

"Egg Spin Test"—determining if an egg is raw or hard-boiled by observing its spinning behavior

"Dancing Raisins"—observing how cold 7-UP or Sprite causes raisins to bob up and down in a glass

"Powder Inflation"—demonstrating how mixing vinegar and baking soda can generate CO_2 and inflate a balloon

"Electric Spoon"—rubbing a plastic spoon with a piece of wool cloth and placing this spoon near salt and pepper, which causes the pepper to jump to the spoon

"Quick Freeze Delight"—creating a small amount of ice cream quickly by using ice and the power of salt

Emily Schmitt, Ph.D., associate professor and coordinator of biological sciences in the Farquhar College of Arts and Sciences, organized the event along with teachers and administrators from Welleby. This was the second consecutive year NSU students brought the community together at the school in celebration of science. Visit the college's Photo Gallery to view pictures from this year's event.

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Bringing Science to Life Outside Our Labs

Like 19

Lauren Douma and Juliana Ospina

College Spotlight on Biology Students

Wearing a T-shirt inscribed with the words "Eat, Sleep, Biology," Nova Southeastern University student Lauren Douma is getting her first crack at demonstrating science before a group of eager and aspiring scientists--most of them 5 to 10 years old.

Douma, a senior and biology major in the Undergraduate Honors Program at the Farquhar College of Arts and Sciences, is conducting a science experiment in a classroom filled with children and parents attending Science Alive! night at Welleby Elementary School in Sunrise. For Douma, who attended this school in the 1990s, the event is also a reunion with her former teachers, who are not surprised to see her return as an honors college student with plans to become a biology professor.

About 400 children in kindergarten through grade 5, parents, and Welleby faculty members attended Science Alive!, a collaboration between the elementary school; NSU students; and Emily Schmitt, Ph.D., associate professor and coordinator of biological sciences in the college's Division of Math, Science, and Technology. Working under Schmitt's direction, 11 students from the college made the scientific method fun for the young audience by conducting hands--on experiments, including an Ice Cube Lift, Diaper Science, and Candy Chromatography. They engaged the children by calling on volunteers, using simple household items, and speaking in simple language--proving that science is around us every day and is for everyone.

For the NSU student participants, it was an opportunity to engage with the local community while honing their public speaking skills, conducting research, and practicing the role of an "expert," said Schmitt, who worked closely with the students to prepare for the event. Such events help strengthen science education in the partnering schools and bring science education into the community, said Schmitt, whose son is a kindergarten student at Welleby Elementary.

"I want kids to see that science is fun," Schmitt said. "I want the parents to be excited to go to collaborative events like these. Part of our mission as a faculty is to do community service. I have access to a lot of excellent students. I wanted to find a way to put them to work as a resource for science education in the wider community. This was a good opportunity for them because they get the chance to practice a lot of their skills. This is a first for some of them."

Douma and biology major Juliana Ospina demonstrated the Ice Cube Lift which, in essence, explored whether salt would help lift an ice cube from a cup of water using only a string. (It did). "That's what science is all about-finding out what is real and what is not real," Douma told the primary--grade students, tracing her own love of science back to elementary school

Read More Spotlights

Want to be in the Spotlight?

Email your alumni, student, or faculty story idea to ois@nova.edu. Please put "Spotlight" in the Subject line. An editor will contact you for more information.

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Students Put Theory Into Practice Through Service Learning

Undergraduates in the Farquhar College of Arts And Sciences Gain Hands-On Experience
Volunteer Programs Offer Community Outreach, Service, and Education

At Science Alive night, marine biology major Shel Simmons delights young students by demonstrating the "Foaming Fountain" experiment–using yeast and hydrogen peroxide to create a dramatic exothermic reaction.

At NSU's Lifelong Learning Institute, Kyley Jorgensen measures the heart rate and blood pressure of member Barbara Brody–the first opportunity for the exercise and sport science major to practice her skills on anyone other than fellow students.

At the on-campus Boomers and Beyond Health Fair, biology major and volunteer Briana Prieto shadows a physician assistant student as he conducts blood-sugar screenings on seniors–giving Prieto a closer view of a field she wants to pursue.

These undergraduate students and their respective professors at the Farquhar College of Arts and Sciences are participating in a service learning pilot program in which hands-on experience and community service are woven into the fabric of academic coursework.

During the winter 2012 semester, this program was part of three particular sections of science courses: Exercise Prescription, Medical Terminology, and Biology I/Lab. Students had the opportunity to practice new skills and expand on classroom lessons while providing service to children, families, and seniors in the community.

Learning the Language While Lending a Hand

"Overall, service learning is a win-win-win to all stakeholders," said Mark Jaffe, D.P.M., associate professor at the college, who is leading the service learning project in his Medical Terminology course. "Students see how classroom theory is put into practice and the community benefits from the energy and passion our students bring to the events. Faculty benefit from having students return to the classroom more energized," Jaffe said.

More Spotlights

- Zoo Intern Experiences the Otter Side of Hands-On Learning
- From NSU to London
- Biology Major Roshni Patel
- Scholarship Students Continue Donors' Legacy
- For the Love of Words: Dan Abella
- Students Put Theory Into Practice Through Service Learning
- Theatre Major Takes a Bow: Jonathan Sanz
- Psi Chi National College Honor Society in Psychology at Nova Southeastern University
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- Curtains Up On New Musical Theater
- NSU Professor and Students Wage War on Mosquitoes
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Title 1
Volunteer

Science ALIVE!!!

WOW!! What a fabulous Science Alive Family Night!! From the food to the presenters, everything was wonderful. Special thanks to Dr. Emily Schmitt and the students of Nova Southeastern University for working with our families and helping them to bring science alive right here at Welleby Elementary. Thank you families for coming out to be a part of this hands-on learning experience. We hope you took away great information and are now ready to try these at home. Below are all of the experiments from each of the presentations and you can do each of them at home to see if you get the same results you got in the sessions. Click the links to pull up the directions. Have a great time bring science ALIVE in your homes!!

Candy Predation

Double Bubble

Rotocopter

Strawberry DNA

Central Area Newsletter

Welleby Elementary School looks forward to the continued partnership between Welleby, Nova Southeastern University, and Professor Dr. Emily Schmitt. We are not sure who enjoyed this night the most, the parents, the teachers, Welleby students or NSU students. However, we are sure that this parent night was a huge success!

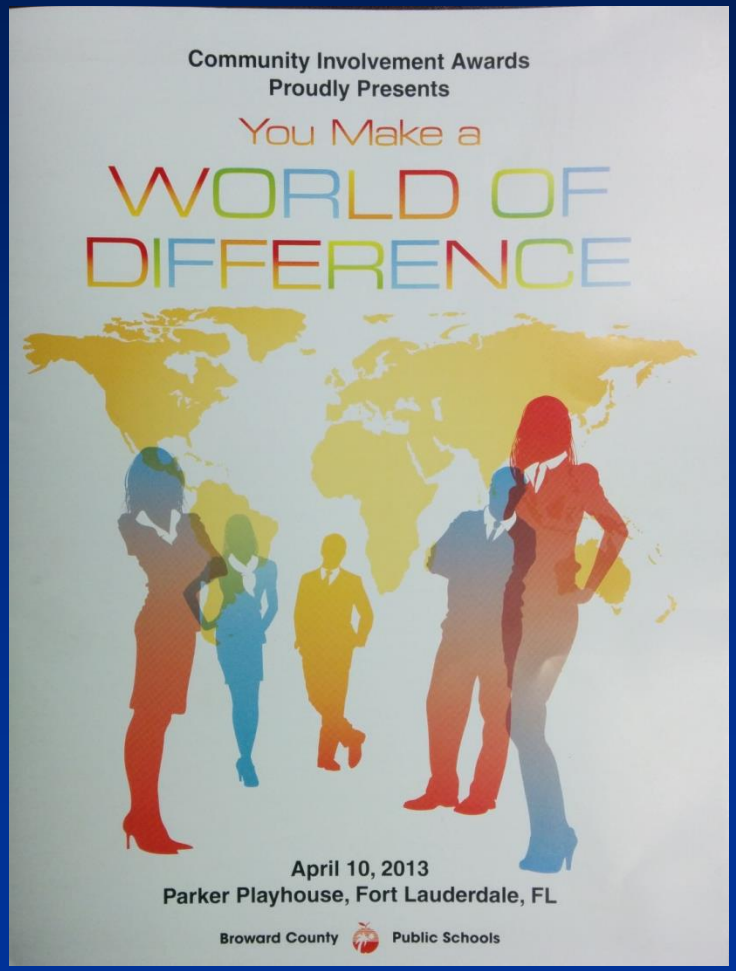
WELLEBY ELEMENTARY

Welleby's "Science Alive" Night Helps Makes Science Experimentation a Family Fun Activity!

Welleby Elementary School and Nova Southeastern University partnered for our Second Annual Science Alive Family Night. The evening was a great night of family fun and learning. Approximately 400 members of the community attended the event and were exposed to over eight different interactive science demonstrations in a total of 10 different classrooms staffed by approximately 40 Nova students under the direction of Dr. Emily Schmidt, their science professor.

Some of the experiments that our students can't stop talking about are the Dancing Raisins, Soap Soldiers, and The Electric Spoon. The Welleby students learned how to power a light bulb with a strawberry and even made their own ice cream! It was so entertaining and surprising to find out the science behind these cool tricks! The students and their parents were energized to repeat these experiments at home in their own kitchens with the handouts developed and distributed by the Nova students at the Science Night. The interactive demonstrations inspired many young minds to have fun learning about science.

Community involvement awards



Elementary School Yearbook

Having Fun

Sharing Your Passion

Sharing Your Profession

With the Community

Science Alive!

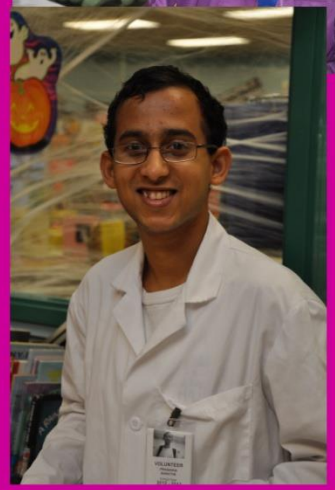
Teaching Science with Confidence!



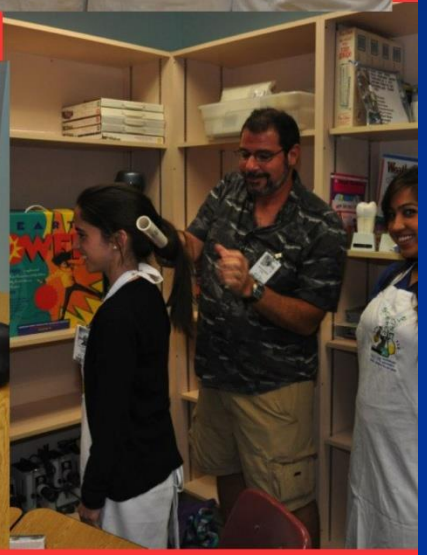

Science Alive! 2012
Matter Day




Matter Day
Fall 2012



Science Alive! 2012
Forces & Energy Day






Forces, Energy, & Motion
Fall 2012




Science Alive! 2012
Hollywood
Boys & Girls Club

Science Alive!
2012

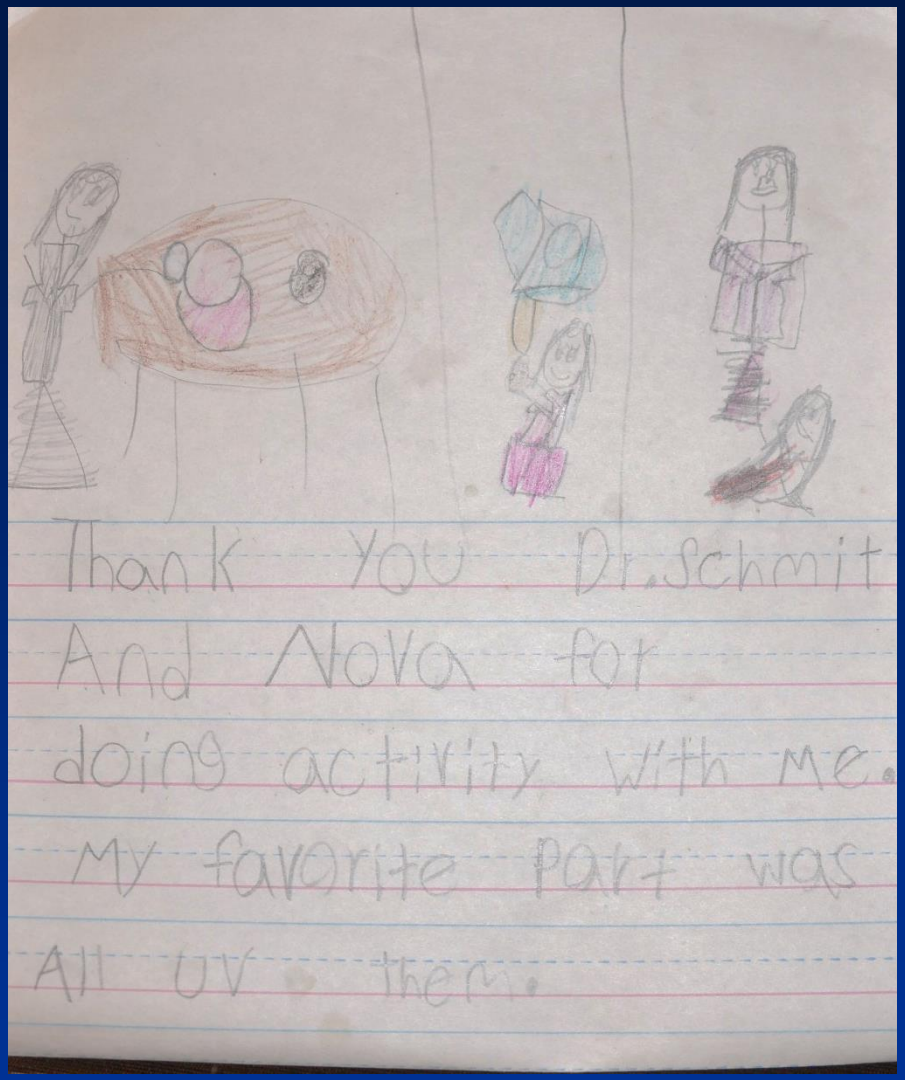


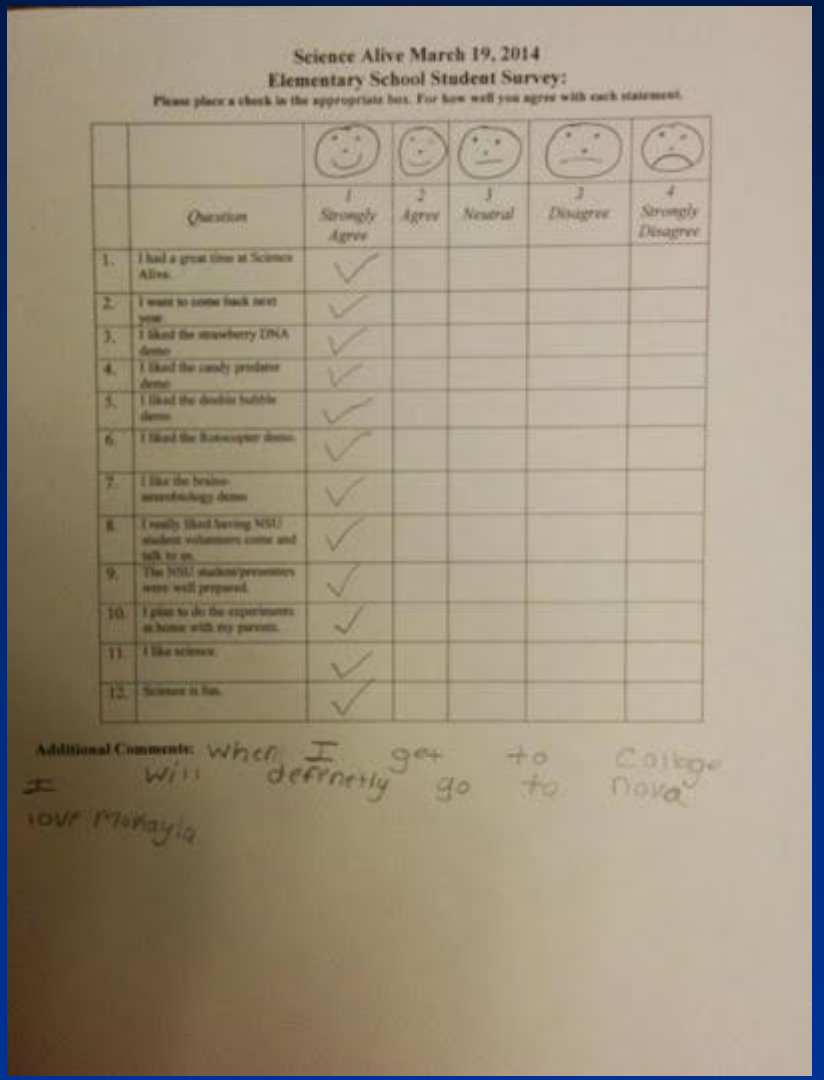

Science Alive!
Pembroke Pines
Charter 2012











Science Alive March 19, 2014
Elementary School Student Survey:
Please place a check in the appropriate box. For how well you agree with each statement.

	Question	1 Strongly Agree	2 Agree	3 Neutral	3 Disagree	4 Strongly Disagree
1.	I had a great time at Science Alive.	✓				
2.	I want to come back next year.	✓				
3.	I liked the strawberry DNA demo.	✓				
4.	I liked the candy predator demo.	✓				
5.	I liked the double bubble demo.	✓				
6.	I liked the Rotocopter demo.	✓				
7.	I like the brain-neurobiology demo.	✓				
8.	I really liked having NSU student volunteers come and talk to us.	✓				
9.	The NSU student/presenters were well prepared.	✓				
10.	I plan to do the experiments at home with my parents.	✓				
11.	I like science.	✓				
12.	Science is fun.	✓				

Additional Comments: When I get to College I will definetly go to Nova
I love Makayla

Any questions?

Let's do some hands-on science!

The Straw Oboe – Try it!

Other Hands-on Activities to Try Here

- Salt Racers
- Lightsaber Training
- Electric Gelatin
- Sticky Rice (front table)
- Lift Off (front table)
- Double Bubble (front table)