Our Community Query: How do we bring peace and love into our homes?
- Middle School

AMONG FRIENDS

Friends Academy Monthly E-Letter | January 2018 >> www.fa.org

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An informational e-newsletter published monthly for Friends Academy parents, grandparents, faculty/staff, trustees, former trustees, and the Alumni Board.

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From the Head

It is late afternoon on New Year's Day. Having just returned from a long, brisk walk in the Arboretum, I write from a fireside seat in Jackson House blessings to all for a prosperous and healthy 2018. In this January issue of *Among Friends* Middle School Principal Deb Schoman gives focus to the "Maker" movement in the Middle School. Deb explains how design thinking, robots, coding, and even tinkering with everyday materials such as cardboard, tape and string become the essentials for "making."

Andrea Kelly
Head of School

Deb writes: "Middle school students learn most effectively when they become inspired by an idea, have a direct connection with their learning through hands-on engagement, and are given an opportunity to create either independently or in groups. Students are at the center of their learning, while their teachers provide guidance and support."

More broadly, one might ask why the call to teach and learn in this way has become recognized as an essential component to student growth.

Solving problems or uncovering knowledge must happen through experiential learning so that students can for themselves plan, try, adjust, correct, fail, approximate, and do again.

I have made reference before to the direct linkage between Quakerism and core principles of a Friends education. In *Friends for 300 Years* (1952), Howard Brinton draws the parallel between Meeting for Worship and the science laboratory

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classroom. "In each, the seeker (or student) is offered an opportunity to make knowledge an experience of one's own."

The concept of learning firsthand in this way, experientially dates back to George Fox, the founder of Quakerism. Early on in his quest for truth, Fox learned that there was no single man or woman, no simple response or words that would give him the understanding he sought. In the end it was his direct connection with God that set him on his path. "This I knew experimentally," Fox wrote of his enlightenment experience.

In the 16th century, "experimentally" meant experientially and Quakerism has been an experiential religion ever since. Likewise, direct connection to one's learning through experience is the foundation of educating children in our Friends School. Like Fox in 1647, this we know 360 years later in just the same way, experientially.

Our peace testimony is the focus in the month of January. **Peace Week** began on January 8th with a return visit from Lama Tenzin Yignyen. Lama Tenzin will be on campus this week offering space for meditation in the Atrium as he constructs a Sand Mandala for peace and compassion. All are invited to observe, meditate and learn from this great teacher at 8:30 a.m. each day.

On January 16th and in honor of Peace Week, the entire community is invited to tour the *100 Years of Waging Peace* exhibit in the Gallery at 6:30 p.m., followed by a talk by Ed Nawatakase at 7:15 p.m. in the Dolan Center Chorus Room.

Please consider joining us for one or several of the Peace Week events over the next week and step into experiential learning at Friends Academy.

On Tuesday, Jan. 16 at 6:30 pm, join student docents from the Upper School GSS International Relations and learn about the AFSC banners on display in the Dolan Center Gallery.

MIDDLE SCHOOL COVER STORY

DIY Thinking

Start with duct tape, add Makey Makey, throw in some coding and finish off with circuits

By Deborah Schoman
Middle School Principal

Makers of all ages today are excited to use their hands and new technology to make things and tinker with others in makerspaces. Using basic tools, cardboard, duct tape, rubber bands and other simple, inexpensive objects, makers are designing and creating prototypes of useful objects that can solve everyday problems. Dale Dougherty, founder of *Maker Magazine* shares what is foundational to the maker movement, "Play and figure things out in groups. Tinker and reshape the world around us. Be a maker and creator instead of a consumer." Considering several

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famous tinkerers like Steve Jobs (Apple) and Elon Musk (Tesla Motors), if makers have the right tools and inspiration, they have the potential to change the world.

Why make?

Research suggests that the adolescent brain continues to grow through puberty and this is a very important time to challenge our students to exercise their brains – to actively practice thinking! "The more a student learns, the more the brain adapts to receive the learning. That is – the more we learn, the more we are able to learn." (Wormeli) Brain research over the past decade has opened new pathways for educator thought in curriculum design and instructional methodology. The ultimate goal is for our students to not just "know" but to "understand" what they have learned. Moving away from the traditional model of teacher lecturer to teacher guide, we are shifting students to the center of their learning, challenging them to investigate, interpret, create, analyze, synthesize, reflect, and act ethically. (Wormeli)

As a Quaker school, our unique mission is to ensure that we are providing an education that focuses on guiding our students to construct knowledge

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Click to Watch Video

VIDEO: From Rube Goldberg and MakeyMakey to coding and VEX Robotics -- explore how the Friends Academy Middle School Makerspace is creating and supporting DIY Thinking.

together in a community where intellectual challenge and expectation are fostered. Deep learning and engagement come from students who ask questions that are relevant to them, seek meaningful and authentic answers, and experience and learn from success and failure in the process. (Fremon)

The middle years are the most dynamic years of a child's educational journey. Middle school students learn most effectively when they become inspired by an idea, have a direct connection with their learning through hands-on engagement, and are given an opportunity to create either independently or in groups. Students are at the center of their learning while their teachers provide guidance and support.

What are they making?

Walk into the newly designed computer/Makerspace in the Middle School and you will see students developing the essential skills and mindset needed to allow them to become "makers." A problem is posed: Work in a collaborative team to design and build a game that is instructional and would be appropriate for younger children. Teams engage in a process called "design thinking," creative thinking as used in the arts, engineering, science, and most corporate work spaces today. With this challenge, the team has to become aware of the needs and abilities of the younger child and together brainstorm the objectives and agreed upon outcomes. Preliminary work

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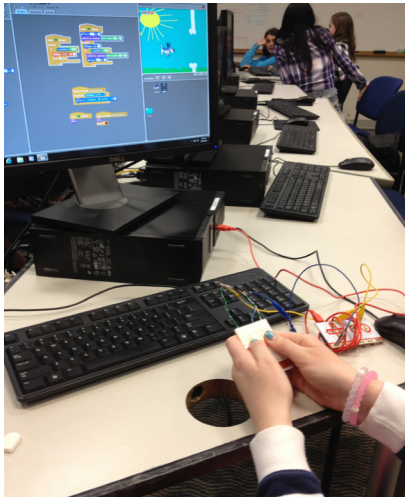
Middle School students stretch their coding and collaborative skills during November's international Hour of Code.

involves doing some research, asking lots of questions, taking into consideration the game objective, size, color, parts, ease of use and what materials they might need to make it. The team comes up with many ideas before generating one idea they all agree upon. They create a prototype. It might be a digital work or a tangible product. They test it and begin to identify what is working and fix what is failing. The goal is to view this revision process as an experiment full of iteration where every mistake takes them closer and closer to the final product. The goal is for students to understand that good design happens after multiple attempts. Failure is something not to be feared, but revered.

In creating the game, the team takes their game sketch from a 2D creation and uses TinkerCad to make and print a 3D creation. Students decide to 3D print a controller appropriate for younger children and use the MakeyMakey computer interface to connect their 3D printed game controllers to the computer. Students also create a game using their computer. They discover that learning to program a computer is like teaching a computer to do something through the use of very specific instructions. Middle schoolers learn to code using Scratch's block programming language. Scratch bundles complex instructions into programming blocks that are stacked onto each other and put into loops that allow the students to create a game.



Seventh graders combine SCRATCH programming and MakeyMakey devices to create an interactive experience.

Why Robotics?

Our Makerspace is also home to our robotics curriculum and MS Robotics Team. Human fascination with robots is universal and participating in a robotics competition at any age is a fantastic learning experience. The idea that a child can imagine, design, build, program, test, compete and then repeat in a circle of continuous learning is wonderful! Robotics provides this. FA Middle School students participate in VEX IQ robotics competitions. They design and build robots from snap-together plastic pieces (similar to Legos), motors, and a robot "brain," which they both drive with remote controls and

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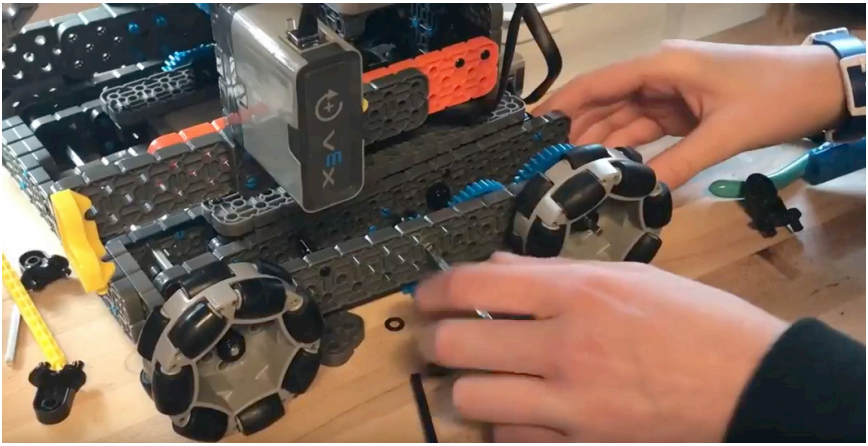

The VEX Robotics Club is open to students in 6th-8th grades. Students compete in regional tournaments as a precourser to States, then Nationals and finally the World Championships.

program for autonomous operation. The robots are designed to compete in a very specific and complicated game on a 4' x 8' competition field, where they work with another team's robot to score as many points as possible in 60 seconds. The robots additionally compete individually on the same field to score points in "driving mode" where the robot is student operated, and, "autonomous mode" where the robot must score points by running programs written by the students. Teams are also judged on their Engineering Notebooks and a STEM Research Project. In addition, participating on a robotics team delivers the positive lessons of being on a team including cooperation and sportsmanship, and, it celebrates the accomplishments of participants in the same way that athletic team success does. Doing robotics well is not easy. The students who dig in and figure it out learn multiple skills that they carry into every other aspect of their life.

The Future

This year, Clare Nesfield has taken on the role of MakerSpace Coordinator. In this role, she not only oversees the operation of the equipment and space, she is also tasked with working with Middle School teachers to help them integrate making projects into their classes and curriculum. With all that we know about the benefits of making to learning, we are very excited about the possibilities that the Makerspace creates for the Middle School experience.

Director of Technology Ken Ambach and Middle School Computer teacher Clare Nesfield also contributed to this article.

Maker Glossary on next page

Maker Glossary

Maker Movement: The Maker Movement is a global movement of people who take charge of their lives, solve their own problems and share how they solved them. (Roscorla)

Makers: Makers are independent thinkers, designers and tinkerers. http://www.adweek.com/brand-marketing/which-big-brands-are-courting-maker-movement-and-why-156315

Design Thinking is a human-centered approach to creative problem-solving, which emphasizes empathy and iterative process.

Scratch is a free visual programming language and online community used by millions of children around the world. With Scratch, children can create their own interactive stories, then share and discuss their creations with one another. Developed by the Lifelong Kindergarten group at the MIT Media Lab[1] to help children (ages 8 and up) learn to think creatively, reason systematically and work collaboratively.

Makey Makey is an electronic invention tool and toy that allows users to connect everyday objects to computers to use as input devices. Using a circuit board, alligator clips, and a USB cable, the toy uses closed loop electrical signals to send the computer either a keyboard stroke or mouse click signal. Students use the Makey Makey to allow their creations to send input signals into the computer as keyboard or mouse clicks.

TinkerCAD is a browser-based 3D solid modelling tool for rapid prototyping known for its simple interface and entry-level ease of use. TinkerCAD models can be exported and sent to 3D printers.

3D Printing is an additive manufacturing process in which a 3-dimensional model is divided using software into multiple slices and then "printed" by extruding a melted thermoplastic layer by layer to create a physical example of the model. FA students use 3D printers which extrude

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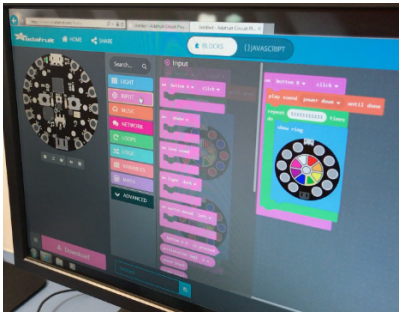
PLA, a biodegradable plastic made from renewable resources like corn starch.

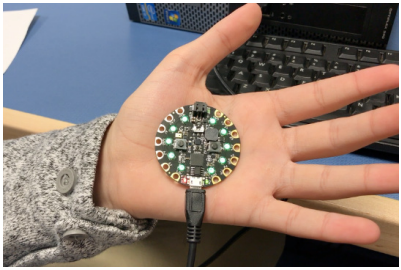
The Hummingbird Robotics Kit is a spin-off product of Carnegie Mellon's CREATE lab. Hummingbird is designed to enable engineering and robotics activities for ages 13 and up (8 with adult supervision) that involve the making of robots, kinetic sculptures, and animatronics built out of a combination of kit parts and crafting materials. Combined with easy-to-use software environments like Scratch, Hummingbird provides a great way to introduce kids to robotics and engineering with construction materials that they are already familiar with.

Lego Mindstorms NXT is a programmable robotics kit which allows students to build robots from Lego bricks combined with controllable motors and various sensors which are managed by an intelligent brick (or brain) which students program to teach the robot to perform tasks. NXT and its successor EV3 are used in the First Lego League competitions.

VEX IQ Robotics kits include easily constructed robots made from plastic parts that snap together with pegs, motors, sensors, remote control, and a programmable brain. Students program the brain and remote control using a graphical version of RobotC language. The remote control allows for rapid prototyping and testing of robot designs. Robots compete in both remote controlled and autonomous programmed modes.

Circuit Playground Express is a tool for learning electronics and programming.





RESOURCES

■ Jane Fremon, *Readings on Quaker Pedagogy*, Meeting for Learning in a Friends School p. 17.

■ Rick Wormeli, "Meet Me in the Middle"

■ Tanya Roscorla http://www.centerdigitaled.com/news/Maker-Movement-Popular-Schools.html

■ Dale Dougherty https://www.ted.com/talks/dale_dougherty_we_are_makers

Get CONNECTED

Here at Parent Council, we are very excited for the community-building activities and meetings we have planned for 2018. We recognize that lives can be busy, so in order to more easily highlight how to get involved, Parent Council has created a monthly "Get Connected" e-mail that will provide you the exact dates, times and places about where and when you can connect with the FA Community.

Parent Council - "Get Connected"
January 2018

DATE	EVENT
Tuesday, Jan. 9 – Thursday, Jan. 11	• Morning meditation sessions with Lama Tenzin Yignyen (8:30 am, Dolan Center Atrium)
Tuesday, Jan. 9	• US Parent Council Mtg. (Jackson House, 8:15 am)
Wednesday, Jan. 10	• Auction Meeting (Jackson House, 8:15 am) • Lunch and Learn with Lama Tenzin Yignyen (Dolan Center Art Studio, 12:30 – 1:30 pm)
Friday, Jan. 12	• Sand Mandala Dismantling Ceremony (Dolan Center Atrium, 10:20 am)

Get CONNECTED

Tuesday, Jan. 16	• Gallery Walk of Peace Week Banners – "100 Years of Waging Peace" (Dolan Center Gallery, 6:30 pm) • Parent presentation with Peace Week speaker Ed Nakatawase (Dolan Center Chorus Room, 7:15 pm)
Wednesday, Jan. 17	• PQLC Breakfast with Ed Nakatawase (JH, 8:15 am)
Thursday, Jan. 18 (change!)	• LS/MS ERB Coffee (Jackson House, 8:15 am) • Peace Week Parent Meeting for Worship (MH, 2 pm)
Friday, Jan. 19	• Health & Wellness Meeting (Mr. Baskind's Conference Room, 8:15 am)
Saturday, Jan. 20	• Family Sandwich Making (Dolan Center Commons, 10 am)
Tuesday, Jan. 23	• Middle School Parent Council Meeting (Jackson House, 8:15 am)
Wednesday, Jan. 24	• Gideon's Attic Kick-off Breakfast (Jackson House, 8:15 am)

Get CONNECTED

Friday, Jan. 26	• Lower School Book Club (Jackson House, 8:15 am)
Monday, Jan. 29	• FA Skate Swap with hot cocoa and coffee (Dolan Center, 8 – 10:30 am)
Tuesday, Jan. 30	• Lower School Parent Council Meeting (Jackson House, 8:15 am)

LOOKING AHEAD

Friday, Feb. 2	FA SKATES All-School Skating Event (Beaver Dam) All are Welcome

Q:

Are you reading *Inside FA* each week?

.....

A:

Yes!
Why?
It's what you need to know this week at FA...
in one bulletin...
at the start of every week... delivered to your inbox.

INSIDE FA — Weekly Update Dec. 11– 17, 2017

NOTE: Some browsers may clip the bulletin. Click "View Entire Message" to read.

IN THIS ISSUE

All School >> Join Andrea Kelly for "Coffee and Conversation"
Arts >> Celebrate the holidays with MS Concert this week!
2018 Auction >> The many ways to support the FA Auction
Development >> Give to the Annual Fund by Dec. 31st; deduct from 2017 taxes
Diversity >> FA holds Educators of Color Open House
Lower School >> How does history come alive?
Middle School >> Making math real, relevant in 7th grade
Parent Council >> All-School Skate Night and Skate Swap
Quaker Life >> Help cook for Glen Cove Men's Shelter
Summer >> Early Bird enrollment by Jan. 31st
Upper School >> Hurricane Relief continues

NEED TO KNOW — Visit the Parent Info Hub

Include a grandparent in our "Inside FA" mailing list and let them stay connected to everything that happens at Friends each week. E-mail first/last name and e-mail to Andrea Miller.

SPOTLIGHT — Click to view Full Calendar

ALL SCHOOL — This Week > >

Monday, December 11, 2017
B Week
All day
Tuesday, December 12, 2017

INSIDE FA — Weekly Update Dec. 4– 10, 2017

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INSIDE FA — Weekly Update Dec. 18– 19, 2017

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INSIDE FA — Weekly Update Nov. 20 – 26, 2017

NOTE: Some browsers may clip the bulletin. Click "View Entire Message" to read.

From our school family to yours... We wish you a very happy Thanksgiving holiday!

IN THIS ISSUE

All School >> Today at 2 pm - "Breaking Bread" Meeting for Worship
Early Childhood >> City Planning in Pre-K
Lower School >> The Academics of Baking
Middle School >> A week of all-things-French!
Parent Council >> Shop and give back to FA