

Minnetonka Research: Experiment in Deeper Learning

Scientific Research students are pursuing authentic research in more than 20 fields of study

Minnetonka Research is a major District initiative that has been six years in the making as we prepared for students who have been accelerated in science since middle school. We modeled this program after some excellent high schools in suburban Washington, D.C., that are also among the top schools in America. Minnetonka Research students are now engaging in individual, authentic research at a high level—consulting with experts from industry and academia, writing research proposals, developing budgets and completing literature reviews.

Students are investigating topics in more than 20 fields of study, from environmental science and microbiology to astronomy and mechanical engineering.

Senior **Isaac Schrof** is under the direction of MHS instructor Kevin Burns and mentor Connor Ekelund of Spectranetics. His goal is to produce a material that models the strength, elasticity and self-healing properties of human muscle. This material has the potential to be applied as an artificial muscle for therapeutic and industrial purposes. His research is titled, "Metal-Ligand Interactions in Pyridinedicarboxamide and Their Effect on the Elasticity and Autonomously Self-Healing Properties of the Elastomer."

Like his peers in the Science Research course, Isaac is encountering new lab techniques and testing procedures that challenge his problem-solving skills.

"Unlike my previous science classes," Isaac said, "I was neither handed a step-by-step procedure nor walked into a lab with all the necessary equipment. I had to create and develop this myself." He cites networking as one of the most valuable skills he has gained so far—consulting with bioengineers, professors and mechanical engineers throughout Minnesota.

Senior **Adrienne Retzlaff** is researching whether the use of an anaerobic bacteria in tumors could be a viable cancer therapy. Titled, "Effect of *Clostridium butyricum* on the Cell Proliferation and Growth of 3D in Vitro Murine Liver Carcinoma Cells," Adrienne's research is also under the guidance of MHS instructor Kevin Burns and Nicholas Kempfert from General Mills. "This class challenges me to learn in a different way and explore what I'm passionate about. My peers have

helped me gain a new perspective and work around a problem."

Aneri Shah, a junior, is undertaking a comparative profile of hypertensive females in India and hypertensive Indian females in the U.S. Her study is focused on the prevalence, awareness, treatment, risk factors and control of hypertension among Indian women. She is working with MHS instructor Russell Durkee and mentor Dr. Mitesh Sheth in India.

Because Aneri is surveying human subjects, her proposal faces scrutiny by an Independent Research Board and Scientific Review Committee. This process ensures the privacy, rights and welfare of participants. Preparing for this review is one more way Aneri is gaining real-world experience through Minnetonka Research.

Learn more! vimeo.com/201193433.



Minnetonka High School Scientific Research students consult with Director Kim Hoehne (center) in the Minnetonka Research Laboratory.

Message

from the Superintendent

We welcome feedback regarding the quality of programs, staff and services we provide in Minnetonka. We also see how well our students are doing on state, national and internationally normed tests. Another important source of information over the years has come from various national rankings of schools and districts.

I still remember when Minnetonka was finally recognized to be in the top 1,000 districts in the country. Now, the latest **Niche.com** ranking has Minnetonka at number one in Minnesota and number 38 nationally. Minnetonka High School is ranked number one in Minnesota, and Scenic Heights Elementary is number one among elementary schools. All six elementary schools are in the top 17 in Minnesota, and MME and MMW are both among the top seven middle schools. Minnetonka is ranked number one in Minnesota for the quality of our teachers, and Minnewashta Elementary is ranked number one among elementary schools in the state.

Other organizations rank schools throughout the country, but Niche.com is the only one that uses true quality measures. Others use a variety of factors that often include how the schools serve various student populations. The *U.S. News & World Report* magazine seeks to identify the most rigorous high schools by looking at the percentage of students taking either IB or AP courses; however, they do not consider the total of IB and AP for each school. They just use one or the other.

We will continue to make progress.

Dennis Peterson

Amplifying Learning with iPads in Fifth Grade

More than 6,300 Minnetonka students in grades 5-12 are using iPads to facilitate individual learning and cultivate 21st Century skills in research, critical thinking, collaboration and creativity

Five years ago, the District implemented its 1:1 iPad program to facilitate and accelerate individual learning. We started with ninth graders and closely followed their skill-building and experiences through senior year. At the same time, we moved the starting point of iPad use to successively lower grades until it reached regular use by more than 800 fifth graders this year.

"iPads are naturally engaging and exciting," says Bryan McGinley, Deephaven Elementary Principal. "Fifth graders are using iPads to amplify **what** they learn and the **speed** at which they learn. We're also using technology efficiently to streamline processes and gain instructional time. This strategy helps us make great gains in the classroom."

iPads allow teachers to efficiently pinpoint every student's level of learning and personalize instruction through engaging lessons that reinforce concepts in math, language arts, science and much more.

Students are thrilled with the opportunity to do research and use creative skills to share what they've learned. Deephaven teacher Michael Borgendale taught his students how to tell a personal story using iPad apps. Students outlined and storyboarded their details and then developed an original video.

Minnetonka's 1:1 iPad initiative is greatly improving the preparation of our students for a highly competitive world they will enter. In addition, all elementary students are receiving critical instruction in digital citizenship and responsible use of technology through dedicated media time at school.



You can learn more about the fifth grade iPad program at vimeo.com/199383039.



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MINNETONKA THEATRE PRESENTS

Steel Magnolias

FEBRUARY 17-26, 2017

minnetonkatheatre.com

952-401-5898 | arts center studio theatre

Minnetonka Schools Calendar

February

- 17-26 "Steel Magnolias," MHS Arts Center Studio Theatre
- 18 Scenic Heights Musical, Excelsior Aud, 1pm & 5pm
- 20 No School K-12, District Office Closed, Presidents' Day
- 25 Deephaven Musical, Excelsior Aud, 1pm & 5pm
- 28 Scenic Heights Gr 5 Band Concert, Cafeteria/Tile Gym, 7-8pm

March

- 2 Districtwide Parent/Teacher Conferences; No Preschool: Conferences; ECFE Meets
- 3 No School K-12, Districtwide P/T Conferences; No Preschool: Conferences, ECFE Meets
- 6 Deephaven/Groveland Gr 5 Orchestra Small Ensemble Recital, Excelsior Auditorium, 7pm
- 7 MHS Band Concert, Arts Center, 7-9pm
- 9 MHS Orchestra Concert, Arts Center, 7-9pm
- 9-11 MMW Winter Musical, Cafetorium

- 10 Clear Springs Talent Show, Excelsior Aud, 7-9pm
- 11 Groveland Musical, Excelsior Aud, 1pm & 5pm
- 13 District Jazz Concert, Arts Center, 7-9pm
- 13 EXC/MWA Gr 5 Small Ensemble Orchestra Concert, Minnewashta West Gym, 6:30pm
- 13-17 Excelsior Elementary World Culture Week
- 14 MHS Choir Concert, Arts Center, 7-9pm
- 15 Parenting with Purpose Series: "How to Raise an Adult" Community Book Read, Arts Center, 6:30-8:30pm
- 16 Clear Springs Gr 5 Orchestra Small Group Recital, Back Gym, 7-8pm
- 16 Full Orchestra Concert, Arts Center, 7-9pm
- 16 Minnewashta Gr 2 Music Program, 6pm & 7pm
- 16-18 MME Musical Performance, Cafetorium, 7-9pm
- 17 East Meets West, MHS, 7-8:30pm
- 18 Clear Springs Musical, Excelsior Aud, 1pm & 5pm
- 18 Deephaven Talent Show, MHS Arts Center, 4pm

- 20 Scenic Heights Gr 5 Orchestra Concert, Cafeteria, 7-8pm
- 21 Clear Springs Gr 2 Music Program, Excelsior Aud, 6:30-7:30pm
- 21 Groveland Gr 2 Music Concert, MME Cafetorium, 7-7:45pm
- 21 MME/MMW District Honor Band Concert, MME Cafetorium, 4:30-5:30pm
- 21 Scenic Heights Gr 2 Choir Concert, Cafeteria, 6:30-7:30pm
- 24 End of 3rd Quarter
- 27-31 No School K-12, Spring Break

April

- 3 No School K-12, Planning and Grading/PLC
- 4 Classes Resume, Begin 4th Quarter
- 14 No School K-12, District Office Closed

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