

Karen Plaster
Associate Professor of Practice
Dept. Curricular & Instructional Studies
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Employment History

The University of Akron, The Urban STEM Center Co-Director, 8/2018 to present

The University of Akron, Associate Professor of Practice, 8/2017 to present

The University of Akron, Assistant Professor of Practice, 8/2016 to 8/2017

The University of Akron, Clinical Instructor, 8/2011 to 8/2016

Teaching Math in an Inclusive Early Childhood Setting (Fall 2017, 2018, 2019 Spring 2017, 2018, 2019, 2020 Summer 2017, 2018)

- Topics: History of Math; Common Core Standards; Integrating Inquiry, Manipulatives, Literacy, Writing, and Technology into mathematics lessons; Math Night at the Western Reserve Boys & Girls Club (2017 – Sp 2018), integrated into the IPromise School setting (2018 to present).

Teaching Math to Young Children (Fall 2014, 2015, 2016, 2017; Spring 2014, 2015, 2016, 2017 & Summer 2017)

- Topics: History of Math curriculum; Common Core Standards; Integrating Inquiry, Manipulatives, Literacy, Writing, and Technology into mathematics lessons; Math Night at the Western Reserve Boys & Girls Club

Colloquium Instructor (Fall 2012, 2014, 2015, 2016, 2017 & Spring, 2012, 2013, 2015, 2016, 2017, 2018)

- Topics: Student Teaching Issues, Resumes, Teacher Performance Assessment (TPA)

Instructional Design and Assessment (Fall 2017 & Spring 2017, 2019, Summer 2019)

- Topics: Curriculum planning (Annual, Unit & Daily), Assessment and Classroom Management

Education Planning, Instruction and Assessment (Fall 2016)

- Topics: Curriculum planning (Annual, Unit & Daily), Assessment and Classroom Management

Engineering for Educators (Summer, 2012, 2014, 2015, Sp 2020). Co- Taught with Dr. Ed Evans (12, 14,15) & Dr. Nidaa Makki (2020)

- Topics: introduction to engineering as a profession; applying engineering process and constraints to problem solving; apply real world engineering problems into a STEM classroom

Mentoring Coordinator Woodrow Wilson (Fall 2013, 2014, 2015 & Spring 2014, 2015, 2016).

- Develop and coordinate mentoring program to support fellows during their first 3 yrs of teaching career

Field Experience Supervisor Woodrow Wilson Fellows (Fall, 2011, 2012, 2013 & Spring, 2012, 2013, 2014).

- Work one on one with STEM Professionals as they transition into teaching in a 7-12 grade Math or Science classroom, coach collaborative teachers as they work with Woodrow Wilson Fellows

Educational Technology instructor (Fall 2011, 2012, 2013)

- Topics: 21st Century Skills, Digital Citizenship, PLE, Webquests, Vodcasts, e-portfolios

Teaching Math to Middle Level Learners Instructor (Spring, 2012, 2013).

- Topics: History of Math curriculum; Common Core Standards; Integrating Inquiry, Manipulatives, Literacy, Writing, and Technology into mathematics lessons; Field Observations

Leadership Through LEGO: Honors Colloquia (Fall 2018, 2019)

Think Tank to Shark Tank: Engineering to Entrepreneur Summer Camp (Summer 2014, 2015, 2018, 2019)

- Topics: needs assessment, research, product design, business plan and marketing processes. Camp designed for middle school students; partnered with the Barker Center for Economic Education Development. Ran the camp in 2015 with Akron Urban League and the Boys and Girls Club of the Western Reserve.

Long Term Substitute Teacher

- Mogadore High School, April 2011
9th to 12th grade Advanced Mathematics; Algebra II; Intermediate Math III and Geometry
- North Canton Middle School, Long Term Substitute Teacher, January to February 2011
6th grade Mathematics, 4 sections and one section of English

R.R. Donnelley & Sons Company_- Willard, Ohio Manufacturing Plant, 1993 - 1996

Manufacturing Facilitator in an 1,800-employee printing and manufacturing plant of large bound books.

Education & Credentials

The University of Akron, Akron, Ohio

Master of Science in Integrated Mathematics with Licensure (Grades 7-12) 2010

The Ohio State University, Columbus, Ohio

Bachelor of Science in Industrial and Systems Engineering, 1993

Honors & Associations

Crain's Cleveland Business 2019 Notable Women in STEM and the

Dorthey O. Jackson Award 2019 from Akron's Women's Network for Girls Who Code

College of Education Outstanding Teaching Award 2017

The University of Akron Excellence in Community Engagement Award 2016

State of Ohio FLL Outstanding Volunteer Award 2015

College of Education Outstanding Service Award 2015

National Council of Teachers of Mathematics (NCTM)

- Ohio Council of Teachers of Mathematics (OCTM)
- Ohio Mathematics Education Leadership Council (OMELC)
- Greater Akron Mathematics Educators Society (GAMES)

National Science Teachers Association (NSTA)

Publication

Plaster, K. & Pachnowski, L.M. (2018). Providing meaningful feedback to student math samples using the Mathematical Practices. *The Ohio Journal of Teacher Education*, 32(Fall), 37-50.

Presentations

Plaster, K., Pachnowski, L.M. & Green, S. (2019 October). *Blending Entrepreneurship and STEM Education: From Think Tank to Shark Tank*. Presented at Ohio Council for the Social Studies (OCSS): Columbus, Ohio.

Plaster, K. & Ronnebaum, B. (2019, February). Robotics FIRST in Class. Presented at Ohio Educational Technology Conference (OETC): Columbus, Ohio.

Plaster, K. (2018, November). *Robotics FIRST*. Presented at Greater Cleveland Council of Teachers of Mathematics (GCCTM): Breaking it Down and Enhancing the “M”: University Heights, Ohio.

Walsh, V.L. & Plaster, K. (2018, November). *Join the Maker Movement*. Presented at Greater Cleveland Council of Teachers of Mathematics (GCCTM): Breaking it Down and Enhancing the “M”: University Heights, Ohio.

Pachnowski, L.M. & Plaster, K. (2018, November). *Girls Who Code Clubs and other Coding Topics*. Presented at Greater Cleveland Council of Teachers of Mathematics (GCCTM): Breaking it Down and Enhancing the “M”: University Heights, Ohio.

Plaster, K. & Martin-Clay, A. (2018, October). Robotics FIRST. Presented at NEOSTREAM Educators Day: Cleveland, Ohio.

Plaster, K., Pachnowski, L., & Baylor, L. (2018, June). *Girls Who Code Programs in Akron and Canton: Show and Tell*. Presented at APS3T: Teach Tech Transform Conference: Akron, Ohio.

Plaster, K. (2018, February). *Egg Carton Math*. Presented at the annual Greater Akron Mathematics Educators Society(GAMES): Akron, Ohio.

Plaster, K., & Pachnowski, L. (2017, October). *Coding Mashup*. Presented at the 67th Annual Ohio Conference of Teachers of Mathematics (OCTM): Columbus, Ohio.

Pachnowski, L. & Plaster, K. (2017, October). *Why the Recent Emphasis on Coding? And What can Schools and Teacher Preparation Programs do to Take Advantage of the Momentum?* Presented at the 67th Annual Ohio Conference of Teachers of Mathematics (OCTM): Columbus, Ohio.

Ronnebaum, B. & Plaster, K. (2017, October). *Did You Know that you Can Program LEGO Bricks?* Presented at the 67th Annual Ohio Conference of Teachers of Mathematics (OCTM): Columbus, Ohio.

Walls, J. & Plaster, K. (2017, February). *Hands on High School!* Presented at the annual Greater Akron Mathematics Educators Society(GAMES): Akron, Ohio.

Makki, N., Holliday, G.M., & Plaster, K. (2016, December). *Shaping teaching practice through field-based action research.* Presented at the National Science Teachers Association (NSTA) Conference: Columbus, Ohio.

Plaster, K. (2016, November). *Is there an App (or Website) for that?* Presented at the Greater Akron Mathematics Educators Society (GAMES): Akron, Ohio.

Plaster, K., Broadway, F. (2016, October). *Patterns in Art.* Presented at the 66th Annual Ohio Conference of Teachers of Mathematics (OCTM): Sandusky, Ohio.

Plaster, K., (2016, October). *A Fresh Look at Abstract.* Presented at the 66th Annual Ohio Conference of Teachers of Mathematics (OCTM): Sandusky, Ohio

Makki, N., Evans, E., & Plaster, K. (2016, April). *Teachers' Understandings and Perceptions in an Engineering Design Course for Educators.* Presented at 2016 National Association of Research in Science Teaching (NARST) Annual International Conference: Baltimore, MD.

Plaster, K. (2016, February). *Math Classroom Technology.* Presented at the annual Greater Akron Mathematics Educators Society(GAMES): Akron, Ohio.

Plaster, K. (2016, February). *How do you use technology in your classroom?* Presented at the annual Greater Akron Mathematics Educators Society (GAMES): Akron, Ohio.

Holliday, G.M., Makki, N., & Plaster, K. (2015, March). *Woodrow Wilson fellows: Shaping teaching practice through field-based action research.* Presented at the annual national meeting of the National Science Teachers Association(NSTA): Chicago, IL.

Plaster, K., Maguth, B.M., & Holliday, G. M. (2015, March). *Think Tank to Shark Tank Camp.* Presented at the annual national meeting of the National Science Teachers Association (NSTA): Chicago, IL.

Plaster, K., Jorgenson, A. (2014, November). *Learn About FIRST LEGO League.* Presented at the annual state meeting of the Ohio Council of Teachers of Mathematics (OCTM): Cleveland, OH.

Liang, X., Pachnowski, L., Plaster, K., & Holliday, G.M. (2104, April). *An analysis of career changers' need in a clinical immersed STEM teacher preparation program.* Paper accepted and

presented to the annual international meeting of the American Educational Research Association (AERA): Philadelphia, PA.

Holliday, G.M., Makki, N., & Plaster, K. (2014, April). *Woodrow Wilson fellows: Shaping teaching practice through field-based action research*. Presented to the annual national meeting of the National Science Teachers Association (NSTA): Boston, MA.

Holliday, G.M., Makki, N., & Plaster, K. (2013, April). *Woodrow Wilson Fellows: Shaping teaching practice through field-based action research*. Presented at the annual national meeting of the National Science Teachers Association (NSTA): San Antonio, TX.

Rouse, S., Holliday, G.M., & Plaster, K. (2013, April). *Biotechnology: Making Biodiesel in the Chemistry Classroom*. Presented at the annual national meeting of the National Science Teachers Association (NSTA): San Antonio, TX.

Plaster, K., & Pachnowski, L. (2013, October). *Flipping the PD: Formative assessment strategies in math*. Presented at the annual Ohio Council of Teachers of Mathematics (OCTM): Dayton, Ohio.

Pachnowski, L., & Plaster, K. (2013, January). *Flipping the PD: Formative assessment strategies in math*. Presented at the annual Greater Akron Mathematics Educators Society (GAMES): Akron, Ohio.

Plaster, K., Holliday, G.M., & Pachnowski, L. (2012, October). *Using Recording and Note-Taking Devices to Improve Math Instruction*. Presented at the annual Ohio Council of Teachers of Mathematics (OCTM): Columbus, Ohio.

Plaster, K. (2012, June). *Building, using and deconstructing the multiplication chart*. Presented at Transforming Urban Education: Urban Learners Matter: Akron, Ohio.

Pachnowski, L., & Plaster, K. (2011, October). *The Woodrow Wilson Math Teaching Fellow Preparation Program*. Presented at the annual Ohio Council of Teachers of Mathematics (OCTM): Toledo, Ohio.

Grants & Research

Awarded

Co-Principal Investigator (with Makki, N.). Engineering for Educators. Martha Holdings Jennings, \$13,000 (2019)

Co-Principal Investigator (with Maguth, B.). Think Tank to Shark Tank. Burton D. Morgan, \$20,000 (2019)

Co-Principal Investigator (with Evans, E.). Video Makes Engineering Elementary? College of Education research grant, \$650 (2017)

Co-Principal Investigator (with Pachnowski, L., Makki, N., and Holliday, G.M.). Ohio STEM Learning Network (OSLN) – UA Woodrow Wilson Teaching Fellowship, Ohio Department of Education, \$15,500 (2014).

Co-Principal Investigator (with Pachnowski, L., Makki, N., and Holliday, G.M.). Ohio STEM Learning Network (OSLN) – UA Woodrow Wilson Teaching Fellowship, Ohio Department of Education, \$25,000 (2013).

Co - Principal Investigator (with Pachnowski, L., and Holliday, G.M.). The benefits and barriers of audio recording technology when used during teacher candidate supervisory experiences, College of Education, The University of Akron, \$1,935 (2012).

Co-Principal Investigator (with Pachnowski, L., Makki, N., and Holliday, G.M.). Ohio STEM Learning Network (OSLN) – UA Woodrow Wilson Teaching Fellowship, Ohio Department of Education, \$90,000 (2012).

Submitted, but not awarded

Co-Principal Investigator (with Evans, E. & Ahmed, W.). Department of Education, Making Engineering Elementary through Video (MEEtV), \$1,265,359 (2019/2020).

Co-Principal Investigator (with Evans, E. & Ahmed, W.). Department of Education, Making Engineering Elementary through Video (MEEtV), \$999,513 (2018/2019).

Co-Principal Investigator (with Evans, E. & Ahmed, W.). National Science Foundation, Making Engineering Elementary through Video (MEEtV), \$347,557 (2018).

Co-Principal Investigator (with Evans, E. & Ahmed, W.). National Science Foundation, Making Engineering Elementary through Video (MEEtV), \$331,836 (2017).

Co-Principal Investigator (with Makki, N. and Evans, E.). Department of Ohio Higher Ed, S.P.A.R.K — STEM propels Akron’s remarkable kids, Improving Teacher Quality Grant, \$88,465 (2016).

Senior Personnel (with Holliday, G.M., Pachnowski, L., Bao, F.S., & Choi, S.) National Science Foundation, Advancing Boys & Girls Clubs in STEM through After-School Robotics. (2014, 2015).

Principal Investigator (with Visco, D.P., Makki, N., & Garafolo, N.). International Soap Box Derby, Curriculum Design for the Gravity Racing Challenge Program (2014).

Senior Personnel (with Holliday, G.M., Pachnowski, L., Makki, N., Evans, E., Broadway, F., & Sisson, T.). National Science Foundation, Noyce Teacher Scholarships. (2012, 2013).

Service Experience

State of Ohio

Computer Science State Standards and Model Curricula writing committee 2018

University of Akron Committees

Urban STEM Center, Director, 2019 to 2020

College Council, Secretary, 2019-2020

Admissions Committee, 2018-2019 (chair)

Scholarship Committee, 2015, 2016, 2017 (chair), 2018 (chair), 2019 (chair)

Dean Search Committee, Spring 2017

United Way University of Akron, 2016

Commencement Marshal, Fall 2015, 2016 Spring 2016

Teacher Academy Visit Day, Fall 2016

Counselor Visit Day, Fall 2016

Student Teaching committee, 2015, 2016, 2017

Woodrow Wilson Committee, Fall 2011 to 2016

CAEP Clinical & Field Sub-Committee, 2013, 2014, 2016

Woodrow Wilson K-12 Curriculum Committee (w/ Akron and Canton Public Schools), Fall 2011, 2012, 2013

TPA committee, Fall 2011, 2012, 2013

Education Minor Committee, 2012, 2013

Ed. Masters requirement Committee, Spring 2012

FIRST LEGO League (FLL)

Director of the University of Akron's *FIRST* LEGO League (FLL) District tournament held Jan. 2014, 2015, 2016, 2017, 2018 & Dec. 2018, 2019

- Hosted 40 FLL teams (made of 4th through 8th graders) and 40 Jr. FLL teams from NE Ohio and their families annually
- Recruited and organized over 75 volunteers annually
- Partnered with the College of Engineering, Rockwell automation and NE Ohio STEM alliance leaders
- Attended Ohio FLL meetings and training

FIRST World Tournament Project Judge, 2018, 2019

Kirtland Regional FLL tournament, Tournament Director, 2015

Snowed-In Regional FLL tournament at the University of Akron, Tournament Director, 2016

Solon Regional FLL tournament, Project Judge, 2013; Field Manager, 2014; Tournament Director, 2015

Cleveland Regional tournament, Head Project Judge, 2015

Lorain Community College Regional FLL tournament, Field Manager, 2013, 2015

Hathaway Brown Regional FLL tournament, Core Values Judge, 2013; Project Judge, 2014

Hudson Regional FLL tournament, Field Manager, 2012, 2013

Seton Catholic Regional tournament, assisted in running tournament, 2014

State of Ohio Tournament, Project Judge, 2015, 2019, 2020; Field Manager, 2016 - 2018

Organized FLL Judges Training at University of Akron, 2013, 2014, 2015
Organized FLL Scrimmage at University of Akron, 2013, 2014, 2015, 2016, 2017, 2018, 2019
Organized FLL Programming workshop at the University of Akron for FLL teams, 2013

NEOHBOTS - Mission to grow FLL throughout Northeast Ohio

Co-Founder & Board Member 2014 - current
Outreach & Tournaments committee chair

Summit & Stark County

Code Hopper, organizer 2018 to present
Code Girl, Fall 2016, 2017, 2018
Girls Who Code, leader, Fall 2016 to 2019
Western Reserve Boys and Girls Club "Math Night," Spring & Fall 2014, 2015, 2016
Judge, BEST Medicine Science Fair, 2016
Judge, Akron Public Schools Science Fair, 2014
PI Day activities at East Middle School, Spring 2013
Akron Public School STEM High School Professional Development Committee, Spring 2012
Judge, Stark County Math Tournament, 2009-2014
Mentored Choose Ohio First STEM students through annual project, Spring 2012