

STEM In Strange Places

What is iQ: smartparent?

iQ: smartparent is an Emmy-winning multimedia television and web series designed for parents that will empower them with new knowledge, tools, and abilities to successfully guide their children through the changing landscape of digital media and technology. It's a growing community of caregivers, national experts, educators, and parent bloggers who want to understand the opportunities and challenges of media as it relates to the development of their children. *iQ: smartparent* was created by WQED Multimedia in 2012.

About this Episode

If you think science, technology, engineering, and math education are only for the classroom, think again! Parents and educators will be inspired by unique examples of STEM education in action in some very unexpected places. . . including an elementary school physical education class; and along the banks of our region's creeks and rivers where Girl Scouts take part in a unique new program called STREAM Girls. STREAM Girls gives scouts the opportunity to earn badges as they serve as citizen scientists, anglers, and artists, in order to build an appreciation for watershed conservation and the environment.

Discussion Questions

1. What do you think of when you hear STEM? Have you ever thought of STEM as being outdoors, artsy, or environmental?
2. STEM doesn't always have to be in the classroom, it can be anywhere. After watching this episode, what are some ways you can include STEM in your children's experiences?
3. How can you build your family's environmental conservation awareness? Are there any local programs in your community to help build an appreciation for the environment?
4. Where can you go with your children to explore nature and explore STEM?
5. The right question asks children to show rather than to say the answer: they can go and make sure for themselves. How can you encourage children to be not only curious but also search for their own answers?
6. How can you encourage scientific exploration with your child? Try asking how, why, and what questions to get your child observing, testing, and explaining.

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About the Guests



Amanda McDermott is a Kindergarten through 4th grade STEM teacher at Montour Elementary School District near Pittsburgh, Pennsylvania. She has more than 11 years' teaching experience. A Montour alum herself, Amanda has taught Kindergarten, 2nd, and 4th grade at Burkett Elementary School prior to landing in her current STEM position. She had teaching experiences in both Australia and Aruba prior to starting her career in Pittsburgh. Amanda has been a Project Lead The Way Master Teacher since 2014 and was named a

Lego Education Master Educator in 2018. Amanda serves as the Crisis Team Department Chair for MES and is a research fellow with AgencybyDesign Pittsburgh Maker Education Learning Community in conjunction with Project Zero and Harvard University. Amanda earned her master's degree in Instructional Leadership from Robert Morris University in Pittsburgh, PA and her bachelor's degree in Human Development and Family Studies and Psychology from Penn State University. She is certified in K-6 Elementary and K-12 Technology Education. She seeks out any and all opportunities that she can bring back to build a better learning experience for her students and better herself as an educator. She believes it is important to take risks in learning and teaches her students to do the same. Her belief is that you only truly learn when you reach outside your comfort zone. Amanda lives in Pittsburgh with her husband. When Amanda is not working, she enjoys traveling around the world with her husband to learn about other cultures (her favorite part of the world is Southeast Asia).

Read about Amanda's makerspace classroom here: <https://education.lego.com/en-us/testimonials/amanda-mcdermott>



Jason Burik serves as Co-Principal of Montour Elementary School, Coordinator of Federal Programs, and STEAM Camp Director. The Montour alum previously served as assistant to the Superintendent, principal at both Burkett and Ingram Elementary Schools, and taught at both David E. Williams Middle School and Forest Grove Elementary School. He earned his bachelor's degree in elementary education and psychology from the University of Maryland Baltimore

County (UMBC) and received his master's degree from the University of Pittsburgh. He holds certifications in elementary education, K-12 administration, supervision of curriculum, and a Superintendent's Letter of Eligibility (earned at California University of Pennsylvania). While attending UMBC he played on the school's Division I. basketball team and earned academic all-conference honors. Mr. Burik lives in the district with his wife and 3 sons. Personal interests include playing basketball and Lego architecture. His commitment to the Montour community is to provide the best education possible for each and every student and help create a spirit of collaboration and open communication among all Montour stakeholders.



Dr. Justin Aglio is the Director of Academic Achievement (K-4) and District Innovation at Montour School District in Pennsylvania. He also serves as a Visiting LearnLab Fellow at Carnegie Mellon University's Human-Computer Interaction Institute in the School of Computer Science. Dr. Aglio was recognized by the Pittsburgh Magazine for the 2017 "40 Under 40" award. In 2016, He was mentioned as an Edtech and Elearning Top 100 Influencer by Analytica and was selected as a Thought Leader by Future Ready Schools. Dr. Aglio was recognized by the Pennsylvania Association for Educational Communications and Technology (PAECT) as the 2014 Outstanding Leader of the Year and 2013 International Society for Technology of Education (ISTE) as an Emerging Leader. In 2015, He was selected to participate in the Presidential Maker Roundtable discussion at the White House. Dr. Aglio has presented at a variety of conferences across the country including Schools That Can National Forum, ASCD, ISTE, Tech & Learning Summit, International Literacy Association, and more. He has also published articles for ISTE, Forbes, EdSurge, Education Week, Getting Smart, eSchoolNews, Learning Counsel, and co-authored the cover story for the 2016 December issue of The School Superintendents Association (AASA) magazine. Degrees earned: Leadership and Administration Doctoral Degree, Point Park University, 2018; Superintendent's Letter of Eligibility, California University of Pennsylvania, 2011; M.S. in Curriculum and Instruction, McDaniel College, 2011; and B.A. in Elementary Education and Teaching, 2001, Waynesburg University.



Dr. Joanne Leight is a Professor of Physical & Health Education at Slippery Rock University. She also serves as Assistant Chairperson of her department. She received her Bachelor of Science degree from SRU in Health and Physical Education, with an emphasis in Athletic Training, and went on to earn her Master of Science degree at the Rock, in Sports Study. She earned her doctoral degree from Duquesne

University in the area of Educational Leadership and certification in Instructional Technology. Dr. Leight began her career at Westminster College, in New Wilmington, PA, where she taught 13 different courses and coached softball, volleyball, and soccer. She has been a faculty member at SRU since 1996 and served as SRU's Head Softball Coach from 1996 to 2003. Dr. Leight has a passion for technology. She serves on numerous technology-related committees at SRU and served on the NASPE Pipeline Technology Committee. She served a 3 year term as technology editor for the Journal of Physical Education, Recreation and Dance (JOPERD) and is currently the Technology Chair for the Pennsylvania State Association for Health, Physical Education, Recreation and Dance (PSAHPERD). Her professional accomplishments include numerous technology-focused presentations, publications, and grants. She is the author of *Technology for Physical Education Teacher Education*, now in its second edition and *Technology for Fitness & Wellness Professionals*.

Online Resources

Nine Mile Run Watershed Association <https://ninemilerun.org/>

Four Mile Run & Panther Hollow Watersheds
www.pittsburghparks.org/projects/four-mile-run

Pittsburgh Parks Conservancy School Programs www.pittsburghparks.org/school-programs

Trout Unlimited

- Stream Girls Program www.tu.org/streamgirls
- Trout in the Classroom program www.tu.org/TIC
- Outreach & Education www.tu.org/conservation/outreach-education

Girl Scouts

- Girl Scouts Program www.girlscouts.org/en/our-program/our-program.html
- Girl Scouts and STEM www.girlscouts.org/en/about-girl-scouts/girl-scouts-and-stem.html
- Report - *Generation STEM: What Girls Say about Science, Technology, Engineering, and Math* www.girlscouts.org/join/educators/generation_stem_full_report.pdf

Venture Outdoors: Educational Hiking

www.ventureoutdoors.org/activity/hike-camp/educational-hiking/

Venture Outdoors Programs www.ventureoutdoors.org/activity/custom-programs/

ALCOSAN Allegheny County Sanitary Authority Educational Programs

www.alcosan.org/ScholasticOutreach/tabid/74/Default.aspx

Plum Landing Nature Exploration <http://pbskids.org/plumlanding/parents/index.html>

20 STEM Outdoor Activities for Fun Learning

<https://globaldigitalcitizen.org/20-stem-outdoor-activities>

[26 Outdoor STEM Activities For Kids](http://www.outdoorfamiliesonline.com/outdoor-stem-activities-guide/)

www.outdoorfamiliesonline.com/outdoor-stem-activities-guide/

STEM Teaching Kit

www.bostonchildrensmuseum.org/sites/default/files/pdfs/rttt/stem/english/STEM.Teaching.Kit_for_Web.pdf

Audubon Naturalist Society – Creek Critters app – Identify small organisms living in local streams to assess the health of the water

<https://anshome.org/creek-critters/>

Downstream - Documentary about threats to watershed quality

www.pointpark.edu/news-communication/Point-Park-University-Produced-Film-Premiers-on-WOED

Montour Elementary School - Brick Makerspace Powered By LEGO Education Solutions
https://elementary.montourschools.com/apps/pages/index.jsp?uREC_ID=1074762&type=d&pREC_ID=1383562

LEGO Education

https://education.lego.com/en-us?cmp=Shop-US-Brand-KAC-Jan-18-General-CPCS-Bing-Brand-ED-LEGO-&s_kwcid=AL!790!10!81157711122718!25494432097&ef_id=V0NgewAABe0AqqtS:20181024183734:s

Brick Model Design – Jason Burik – LEGO artist www.brickmodeldesign.com/

The Joan Ganz Cooney Center– STEM Starts Early

https://joanganzcooneycenter.org/wp-content/uploads/2017/01/jgcc_stemstartsearly_final.pdf

U.S. Department of Education – Let’s Talk, Read and Sing about STEM! Tips for Preschool Teachers & Providers

www2.ed.gov/about/inits/ed/earlylearning/talk-read-sing/stem-toolkit-preschool-teachers.pdf

National Council of Teachers of Mathematics – Position Paper – Building STEM Education on a Sound Mathematical Foundation

www.nctm.org/Standards-and-Positions/Position-Statements/Building-STEM-Education-on-a-Sound-Mathematical-Foundation/

SHAPE America

- Comprehensive School Physical Activity Programs www.shapeamerica.org/CSPAP/
- National Standards & Grade-Level Outcomes for K-12 Physical Education www.shapeamerica.org/standards/pe/

American Heart Association – Play 60 Challenge – Lesson Plans

www.heart.org/HEARTORG/Educator/FortheClassroom/NFLPlay60Challenge/PLAY-60-Challenge-Lesson-Plans_UCM_453013_Article.jsp#.WdT3imhSyUk

Move to Learn Initiative <https://movetolearnms.org/about/move-to-learn-initiative/>

Common Sense Media – Health & Fitness App Reviews

www.commonsensemedia.org/reviews/category/app/genre/health-fitness-65

Texas A&M Study Transforms Traditional Perceptions of Physical Activity

<https://vitalrecord.tamhsc.edu/texas-am-study-transforms-traditional-perceptions-of-physical-activity/>

U.S. News & World Report – *Schools Use Technology to Improve Gym Classes*

www.usnews.com/news/best-states/pennsylvania/articles/2017-03-06/schools-use-technology-to-improve-gym-classes

Exer-Gaming: Game Play and Exercise FUN

www.upmcmhealthmatters.com/exer-gaming-game-play-and-exercise-fun/

The Role of Exergaming in Improving Physical Activity

www.ncbi.nlm.nih.gov/pmc/articles/PMC4180490/

Can Exergaming Contribute to Improving Physical Activity Levels and Health Outcomes in Children?

http://pediatrics.aappublications.org/content/124/2/763?sso=1&sso_redirect_count=1&nfstatus=401&nftoken=00000000-0000-0000-0000-000000000000&nfstatusdescription=ERROR%3a+No+local+token

Exergaming – Not Just for Kids Anymore!

www.acefitness.org/certifiednewsarticle/1184/ace-sponsored-research-exergaming-not-just-for-kids-anymore

iQ: smartparent is created with support from:

