

**6th Biennial POSB Math and Science Institute**  
**Hosted by The Maryland School for the Blind-Virtually**

Monday, February 15, 2021-Tuesday, February 16, 2021

<b>Monday, February 15, 2021</b>	
<b>Times (All Eastern Standard Time)</b>	<b>Session Information</b>
9:15AM	<p><b>Welcome!</b></p> <p>The Maryland School for the Blind Welcomes attendees with a message from Superintendent W. Robert Hair, followed by a virtual tour of the School campus.</p>
9:30-10:30AM	<p><b>New Graph-making Tools for Students and Teachers</b> Presented by: Fred Otto</p> <p>Come see some new materials from APH to help students and teachers make accessible, reviewable graphs and diagrams for math and science. Hands-on experiences are essential for visually impaired learners to build complete concepts. These tools have features not previously offered by graphing access solutions.</p>
10:45-11:45AM	<p><b>Session A: Teaching Students the Nemeth Braille Code for Mathematics and Science Notation: A Free Totally Accessible Online Approach</b> Presented by: Susan Osterhaus, Sara Larkin, Tina Herzberg</p> <p>The class will begin with an overview of the Nemeth Code Curriculum.</p>

	<p>This curriculum includes lots of hands-on activities and games for younger students that reinforce grade-level math concepts. Then we will move to the Focused Lessons for Grades 3 – 8, and finally we will focus on the Nemeth Symbol Library, which allows the user to look up symbols or math terms and find definitions for writing those in Nemeth Code, complete with examples for older students. Bring your computers and let's get excited about Nemeth!</p>
	<p><b>Session B: New and Innovative STEM Products from APH</b> Presented by: Rosanne Hoffman, Ken Perry, Heather Kennedy-MacKenzie</p> <p>Participants will learn how to teach the difference between plant, animal, and bacterial cells to students with visual impairments. Participants also will see how the accessible Code and Go, RC Rover, and Bric structure kits enhance your STEM educational toolbox.</p>
<p>12:00-1:00PM</p>	<p><b>Lunch/Roundtable Discussion 1: Virtual Instruction in Math K-12: What is Working!</b></p> <p>We are in a year like no other! A year where we try new things. Sometimes they work and sometimes they don't. How are you providing math instruction virtually? What has worked well for you? Let's spend some time mingling and munching while learning from each other.</p> <p><b>Lunch/Roundtable Discussion 2: Virtual Instruction in Science K-12: What is Working!</b></p> <p>We are in a year like no other! A year where we try new things. Sometimes they work and sometimes they don't. How are you</p>

	<p>providing science instruction virtually? What has worked well for you? Let's spend some time mingling and munching while learning from each other.</p>
1:15-2:15PM	<p><b>Session A:</b>  <b>Doing Arithmetic and Reading/making Graphics is Easy</b>  Presented by: John Gardner, Carolyn Gardner</p> <p>We demonstrate how teachers or parents can create arithmetic problems and simple graphics for young students. Blind students do arithmetic, read and even create graphics by audio-touch. They need a touch-screen computer or other touchpad along with tactile overlays. All this is surprisingly easy to learn and do.</p> <hr/> <p><b>Session B:</b>  <b>Increasing Independent STEM Access in the Home, Fieldwork, and the Classroom</b>  Presented by: Ashley Neybert</p> <p>Learn how to increase student participation and independence in STEM more than ever before in both virtual and face to face settings using the new Sci-Voice Talking LabQuest 2 V.3. In addition, check out amazing free resources from Independence Science including professional development webinars and our new Accessible Periodic Table.</p>
2:30-3:30PM	<p><b>Session A:</b>  <b>Students Drawing in Math: A Pathway to Learning</b>  Presented by: Sara Larkin, Susan Osterhaus, Tina Herzberg</p> <p>The 4th and 5th standards for mathematical practice in the Common</p>

	<p>Core State Standards are "Model with mathematics" and "Use appropriate tools strategically". We all know that math is a very visual subject and how important it is for students to show what they are thinking. That includes having the students model by creating their own drawings. We will share how students who use braille can do that in a variety of ways.</p>
	<p><b>Session B: Making Data Accessible: Using Asteroids to Fire-up Students' Motivation to Explore Astronomy, Coding, Computers, and Image Processing</b> Presented by: Kate Meredith, Kathy Gustavson</p> <p>This self contained module takes students on a journey through astronomy concepts, computational thinking using the Quorum Computing language, and an image processing program called Afterglow Access. This shows students that "Big Data" and its analysis in today's world of science is within reach of all.</p>
<p>3:45-4:45PM</p>	<p><b>Code Jumper: Building Career Paths through Accessible Coding</b> Presented by: Greg Stilson, Robin Lowell</p> <p>Presenting Code Jumper, a physical toy that makes learning the basics of coding accessible, so every student can have the potential for a successful future.</p>

**Tuesday, February 16, 2021**

**Times (All Eastern Standard Time)**

**Session Information**

9:30-10:30AM

**Session A:  
Start by Asking Questions: Using Problem Based Learning to Weave Math and the Expanded Core Curriculum**

Presented by: Christina von Reyn

Let's explore the world of Problem Based Learning (PBL) to develop critical thinking skills beyond the classroom. We will show the process of constructing PBL units, examples from a math and ECC classroom, and the integration of math standards, IEP goals, and ECC areas to maximize the learning experience.

**Session B:  
Teaching Accessible Science from a distance- the new world of remote teaching and learning**

Presented by: Kate Fraser, Laura Hospital

Teaching science has never been easy! But it is always an interesting challenge, requiring us to be creative and flexible. Changing curriculum and increasing non-accessible resources already presented us with new challenges! And now with the restrictions of distance learning, the teaching of accessible science has become even more difficult. During this presentation we will share what has worked, and not worked, for us, as well as give all participants a chance to share ideas, ask questions, and provide support for one another!

10:45-11:45AM

**Coding and robotics for the visually impaired--what we have learned so far**

	<p>Presented By: Jennifer Bliss, Sara Larkin</p> <p>Coding, robots and screen readers, oh my! Mainstreamed students are sometimes placed in STEM classes where content for computer science is structured in online programs which are not accessible. We will share our journey over the years of teaching alternatives through extended programming, as well as our efforts to make the mainstream curriculum accessible. Multiple robot platforms and different coding alternatives will be discussed.</p>
12:00-1:00PM	<p><b>Lunch/Roundtable Discussion 1: Instructional Strategies and Accessibility for Elementary math and science</b></p> <p>There's nothing like a conversation over lunch or a little snack. Bring your food with you and let's spend some quality time together. This will be an informal atmosphere and a chance to collaborate and learn from each other about what works well when teaching concepts at the elementary level.</p> <p><b>Lunch/Roundtable Discussion 2: Instructional Strategies and Accessibility for Secondary math and science</b></p> <p>There's nothing like a conversation over lunch or a little snack. Bring your food with you and let's spend some quality time together. This will be an informal atmosphere and a chance to collaborate and learn from each other about what works well when teaching concepts at the secondary level.</p>
1:15-2:15PM	<p><b>Session A:</b>  <b>Making Accessible Math Worksheets: 15 minutes or less</b>  Presented by: Cody LaPlante</p> <p>The looming question in the field of blindness and visual impairments: How do you easily get an equation onto a refreshable braille display in Nemeth or</p>

	<p>UEB math without taking the time to transcribe the actual code? Impossible? Not anymore. In this presentation, participants will learn how to utilize the power of math OCR to get math equations onto a student's braille display in perfect Nemeth or UEB in 15 minutes or less.</p> <p>And here is the best part: You do not need to know math and you do not need to know braille.</p> <hr/> <p><b>Session B:</b>  <b>"Accessibility to visuals for Students with Blindness and Low Vision" The virtual way</b>  Presented by: Ashley Nashleanas, Jasodhara Bhattacharya</p> <p>With COVID comes the challenge of making visual information accessible to the blind. ISci researchers will demonstrate how blind individuals can use the latest Apple products to turn initially inaccessible graphics files to formats that can be embossed into a 2-dimensional tactile image with a Tiger printer.</p>
2:30-3:30PM	<p><b>Session A:</b>  <b>Project INSPIRE: Nemeth in a Box</b>  Presented by: Tina Herzberg, Susan Osterhaus, Sara Larkin</p> <p>This session will share a variety of games, activities, and resources that can be used when providing virtual instruction of the Nemeth Code to students at the middle school level. It will include the use of Which One Doesn't Belong (WODB), Bingo, Which One's Wrong (WOW), Mazes, Trivia, Boggle and anything else we can come up with!</p> <hr/> <p><b>Session B:</b></p>

	<p><b>Chemistry experiments for the blind with low-cost talk-aloud sensors</b> Presented by: Sriram Bhimaraju, Nitya Kuppireddy</p> <p>With the invaluable guidance of blind chemist and entrepreneur Dr. Hoby Wedler, Donum Visi, a 501c(3) nonprofit presents low-cost, talk-aloud sensors to enhance the experience of performing chemistry experiments for visually impaired students by integrating technology, and also be able to apply similar tools in other facets of their life.</p>
3:45-4:45PM	<p><b>Everybody Can Code - Even Remotely!</b> Presented by: Sue O'Brien, Daniel Wheeler, Renee Toy</p> <p>Effectively teaching a coding class to students with blindness and visual impairments can be difficult in the best of circumstances. Using the resources developed for Apple's Everyone Can Code curriculum we have found that students can successfully learn to code when they are remote. We will share the resources and methods we have found effective. Download the sample copies of the maps and bring your iPad!</p>