Region 1
Centennial Math Project: Math Teachers as Change Agents
The Math Teachers as Change Agents (MTAC) project is designed to develop teachers as leaders in math education, focusing on problem-solving and reasoning. This year, MTAC has been piloted in several schools, with plans for expansion.

Spring 2017
Mathematics Education Conference: Connecting Research to Practice
The conference will feature presentations on innovative teaching strategies, research findings, and best practices in mathematics education. It aims to bridge the gap between research and classroom application, offering valuable insights for educators.

Math Boot Camp: Preparing for the Next Year
In partnership with local universities, a series of workshops will be offered to help teachers get ready for the upcoming school year. Topics will include curriculum planning, assessment strategies, and technology integration in the classroom.

Join us for a dynamic and informative event focused on enhancing the math education landscape.

Contact:
info@idaho.edu
(208) 123-4567
About Us
Idaho Regional Mathematics Centers provide support to educators statewide.

Teacher Feature
Adam Hanan walks through creative lesson planning using the free online resource, Desmos!

Desmos in a Flash
A graphical overview of Desmos.

Upcoming Events
See what’s happening at the Idaho Regional Mathematics Center.

Math Literature
Some great summer reading ideas in the IRMC library.

Center Staff

Dr. Julie Amador, Regional Director
Associate Professor of Mathematics Education
Julie teaches elementary/middle school mathematics and technology education at the University of Idaho, in the college of education’s department of curriculum and instruction. She researches lesson study and how teachers design and enact lessons, with a strong emphasis on what teachers notice about student thinking.

Dr. Abe Wallin, Regional Math Specialist
Abe teaches courses on mathematical thinking and provides curriculum and teaching support to area school districts. Recently he has been working on designing a K-5 curriculum, assessment writing, and development of mathematical tasks with local teachers. In addition, Abe continues to conduct research on the use of video clubs with mathematics teachers.

Jode Keehr, Program Coordinator
Jode’s background is in design, advertising, and web development. She is currently a graduate student in the human factors/experimental psychology doctoral program at the University of Idaho. Recent projects include examining leadership feedback and attitudes of math resistance.

Chris Chilton, Administrative Specialist
With years of experience in video, design, and audio, Chris supports local teachers with multimedia data collection and works on various projects for the center. He holds a bachelor’s degree in electronic media and film from Eastern Washington University in Cheney, Washington. Chris’s creativity is not limited to media, he’s also a talented musician.

QUESTIONS?
Contact us: irmc@uidaho.edu
(208) 292-2514

WANT TO MAKE SURE YOU’RE ON OUR MAILING LIST?
E-mail us with the subject line: Add Me!
irmc@uidaho.edu

FIND US ONLINE:
uidaho.edu/irmc
Follow #idahomath

We gratefully acknowledge contributions and support from Idaho’s State Legislature and the Idaho State Department of Education, making these programs possible.

We Are Here To Support You
The Regional Mathematics Center is open year round. We are able to meet with teams of teachers during the summer months as well as during the school year. If your district is in need of mathematical support, please contact us. We are happy to work with teachers and administrators in developing instructional plans, conducting assessment reviews, or addressing other concerns at no cost.

Idaho Regional Mathematics Center
Upcoming Events
MoDAL Summer Institute & Collaboration
June 26-28, 2017, 8:00 am - 4:30 pm
Room MBL 264, University of Idaho, Coeur d’Alene

The Idaho Regional Mathematics Center at the University of Idaho, in conjunction with Boise State University, invites you to apply for the MoDAL Summer Institute, Modeling and Data Analysis Literacy (MoDAL) is a four-day professional development workshop in the context of secondary data analysis and statistics, followed by 1 cycle of blended-format (face-to-face and hybrid) collaboration sessions during the 2017-2018 school year for secondary mathematics teachers in Idaho. Carefully crafted contexts support connections both within and across grades 6-12 mathematics standards.

The MoDAL Summer Institute will be held with 40 teachers, followed by classroom teaching during the 2017-2018 academic year; follow-up cycle dates to be determined. MoDAL Summer Institute offers teachers chances to work closely with peers to engage with rich tasks, analyze thinking, consider teaching practices and tailor curriculum for their classroom. The purpose is to build knowledge and skills needed to effectively teach statistics ideas while creating high-quality, web-based curriculum for teachers.

You may apply at modal2017 IdahoEventbrite.com.

Synchronous Online Professional Learning Experiences for Middle Grades Mathematics Teachers in Rural Contexts
“SyncOn” is a new project funded by the National Science Foundation. The project is intended to develop, implement and study an innovative online mathematics professional learning model designed to create high impact growth opportunities for grades 5-8 math teachers in rural districts. Dr. Jeffrey Oxenford and Cynthia Callard at the University of Rochester and Dr. Julie Amador at the University of Idaho are project leaders.

If you would like to participate or have questions, please email Julie Amador, iamador@uidaho.edu.

TMT Classes
6-8 : June 16-28, 2017, 8:30 am - 4:30 pm
6-9 : June 12-24, 2016, 8:30 am - 4:30 pm
6-7 : August 14-26, 2016, 8:30 am - 4:30 pm
Room MBL 264, University of Idaho, Coeur d’Alene

Teaching Mathematical Thinking (TMT) is a course that fulfills the 3-credit MTI course requirement for Idaho teachers. This course provides an opportunity to study fundamental mathematical theory underlying the content area of numbers and operations and student reasoning of numbers and operations topics within a framework of a student-centered, problem-based classroom.

Registration for all TMT classes begins at www.uidaho.edu/irmc-events.

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I print the perfect lesson and practice worksheet. I have all the good questions in mind to help my students’ thinking really blossom. I hand out the papers with great expectations of how the learning will proceed. Within minutes the class is frustrated and lacks focus. When I walk around, my students hunch over their papers in an effort to hide their work, or lack thereof, no one daring to make eye contact. If you have been in a secondary math classroom for more than ten minutes you have, no doubt, experienced this frustration.

I first explored Desmos with my Algebra 2 class several years ago. At that time I focused on using the graphing calculator feature. This meant having my students graph various functions and draw conclusions from the visual representations. The site was a great free resource for this purpose and it worked on multiple platforms. However, both my knowledge of the site and the available resources within Desmos were lacking at that time, so I gradually stopped using it. This year, after accepting the challenge of teaching a new math course at our high school and searching for engaging tasks, I decided to return to Desmos. With the addition of the pre-made materials and the embedded tools in Teacher.Desmos.com, I felt it was worth a closer look.

Revisiting Desmos

The ready-to-use activities from this site allow you to put the heavy lifting of learning where it belongs, on students. If you cannot find a task that fits your needs, there is an Activity Builder option which allows you to develop and save lessons within the Desmos platform once you have created an account. I consider the Activity Builder to be the math enthusiast’s version of PowerPoint; except it is interactive, and it includes a myriad of tools for asking and answering mathematical questions.

I always joke that when I found the Desmos Teacher site I got lost for days, engulfed in this newly discovered resource. During that time I played with and modified...
activities that I found or built. Currently, I begin every one of my planning sessions wondering, “How could I use this tool to better understand what students are thinking about this concept?” I have been integrating a Desmos activity almost daily as either a short opening task, as an exit ticket, or as a full lesson for my whole class. Thus far I have built a number of activities for my students, many of which I have been able to test and refine.

Over the course of the year, I have developed a system for planning a lesson with Desmos. I typically begin with a specific concept in mind or objective that I am trying to reach. I spend a short amount of time searching the pre-made activities, but if I am unable find something that fits my criteria, or that I can easily modify, within ten minutes, I usually choose to build my own task. Once I have a clear understanding of my goals, I can typically create an activity from scratch in 15 minutes to an hour, depending on the features I choose to use. I often search available resources (my digital textbook, Khan Academy, or Illustrative Mathematics for example) when building activities because these can often contain interesting questions or ideas for tasks. Using Desmos Activity Builder, I am able to create an experience for my students to engage in mathematics in an interactive way. I am able to pull images or video from either my own computer or the internet to help create a context for my students’ problem-solving. Combining these visuals with questions that allow students to graph, draw, select, or write out an answer keeps the task interesting. I am able to create questions and situations where students have to decide if they will follow their peers or if they believe in their own ability to think through the mathematics; they are required to face their own insecurities and hopefully, through this process, increase their mathematical confidence. Plus you can instantly see what each student is doing from your own computer in real time. As you monitor their progress, you have the ability to focus them on a specific question, or set of questions, within the task, or completely pause all screens to call attention to the front of the room for a more in-depth explanation of a concept. You can put up one student’s work to help others move forward or to address a misconception.

Using Desmos in this capacity has freed me up to let students demonstrate what they know, rather than telling students what they need to learn. As a result, the collaboration in my classroom has increased, and there is an expectation that at any given point in time Mr. Hanan will black out the screens and share some student’s thoughts or ideas on the big screen. My students know that I am constantly experimenting, and they tolerate my madness while we learn together. They became more engaged through using Desmos versus a stand-and-deliver lesson or traditional worksheet practice. As I explore, my students get to experience the instructional features (restricting students’ screens, pausing their activity, anonymizing student work, allowing them to see classmates’ work, and much more) in the activities first hand. As a result, the students have informed me they currently have a “love-hate” relationship with Desmos. They love seeing what their classmates did and that I talk only when I observe a misconception that needs to be addressed. They ‘hate’ the fact they actually have to do the work; no more hiding behind a worksheet for 35 minutes hoping they can run for the door before I notice the missing work.

“Dwindling are the days where they can fake their way through an assignment.”

Students are losing places to ‘hide’ in my class. Dwindling are the days where they can fake their way through an assignment and be in another class before I can see their work and notice they did nothing or misunderstood the day’s concept. As recently as a year ago, when I was not using Desmos, I couldn’t tell you if I was accurately and efficiently assessing student learning on a daily basis in a way that was helping students. Using the activities in Desmos has opened up a feedback channel between me and my students and created a classroom culture focused on what we need to know, reducing the tendency to camp out on what we already know.

Obviously, every classroom is going to be different, just like our teaching styles. However in using this with my students I have made several observations:

- Students will give you more digitally than they will on paper.
- Students are really good at analyzing each other’s work when it is anonymized and at the forefront of their attention.
- There is a time for technology, but paper and pencil still have their place in the math class.
- Students like feeling they are in control of their learning, so play around with pacing.
- Make a commitment to talk only about what is essential. If it is a new concept and everyone has the correct answer, commit to not waste your students’ time by explaining it. Instead, make them explain their thinking to each other.

The resources within the Desmos site offer many possibilities for the modern math classroom and they should no longer be ignored. The power of observing your students’ thinking and addressing it in real time cannot be overstated. These tools can provide a safe environment in which students can address mathematical concepts while increasing the teacher’s ability to understand the instructional needs of each individual. Building tasks requires some time initially but with practice this is comparable to planning most lessons. The technology almost ensures students will be engaged. I suggest you give Desmos a(n)other try in your classroom, I guarantee you will be surprised by the possibilities it affords.
These pictures represent multiple views of a single slide within the program. The slide features a graph, a note to the student with an embedded question, and a space for the student to respond. Using the graphing features allows students to manipulate a picture; in this case, changing the amount of water in each glass. The student view option enables the developer to view each slide just as students will.

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Importing pictures with the sketch features provides students an opportunity to clarify their thinking through creating a visual representation. Desmos also provides spell check in the student window, which helps alleviate some stress students may feel when sharing their thinking.
NUMBER TALKS
Drawing on the work of Cathy Humphreys and Ruth Parker, Sherri Parrish has compiled two volumes of number strings designed to cover primary through middle school content. Using number talks allows for the development of numerical strategies through student reasoning and discovery. In addition, it supports the standards for mathematical practice. Whether you have been using number talks for years or you are just wanting to learn a little more, consider checking out these resources.

NUMBER SENSE ROUTINES
Just as athletes stretch their muscles before every game and musicians play scales to keep their technique in tune, mathematical thinkers and problem solvers can benefit from daily warm-up exercises. Jessica Shumway has developed a series of routines designed to help young students internalize and deepen their facility with numbers. The daily use of these quick experiences at the beginning of math class will help build students’ number sense.

NCTM SERIES: ESSENTIAL UNDERSTANDING
Each grade-band book in the NCTM’s Essential Understanding series addresses a topic that is widely recognized as being challenging for teachers to teach and students to learn. Each book in the series develops core concepts identified as the “big ideas” within the topic at that grade level. Investigating these resources will deepen any math teacher’s understanding of how to teach at his or her grade level.

Need more summer reading?
Visit our website: uidaho.edu/irmc