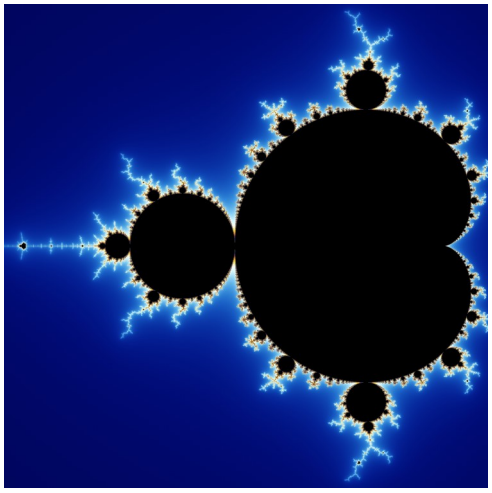
PINNACLE

THE PINNACLE NEWSLETTER OF THE IDAHO COUNCIL OF TEACHERS OF MATHEMATICS((ICTM)

READY TO TEACH



SEMTEMBER 2017 VOLUME XVIII, ISSUE 1

In this issue:

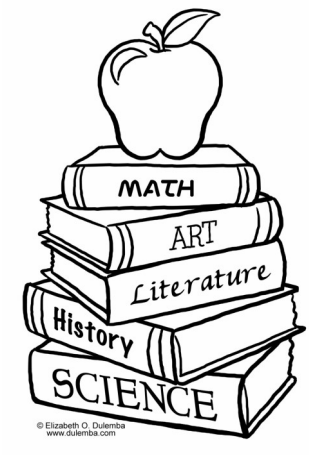
In this issue:

We are on the web:
www.idahoctm.org

FALL CONFERENCE

Fall 2016 Conference

Super Conference was a fabulous to connect, collaborate, and .
Here's a picture of the attendees.



We are on the web:
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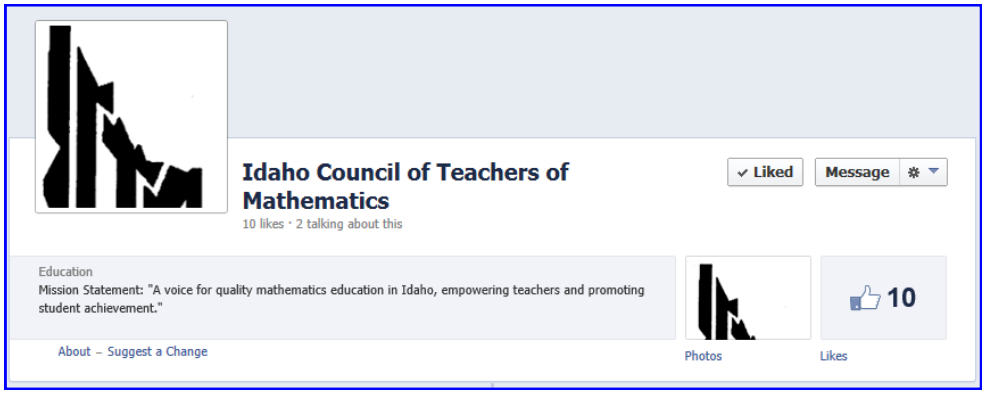
ICTM ON FACEBOOK

We are on FACEBOOK. Visit the page and like us. Need information, follow us on FACEBOOK.



Lifetime ICTM Membership
Newly Retired or Retiring Soon?

You are eligible for lifetime ICTM membership if you have been a member for 5+ years and are retired. If you have retired in the last year, or plan to retire this year, please let Leora White (lwhite@nsd131.org) know that you are eligible.

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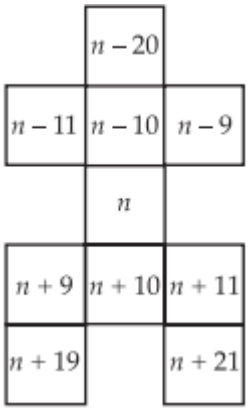
AlgeBot - A Trek Through the Hundred's *Chart*

by Brad Fulton and Bill Lombard

My 8th grade students enjoy discovering the algebraic patterns hidden within the hundreds chart. They are all familiar with this chart that they have seen since Kindergarten. One of our activities involves "AlgeBot." I display a transparency of the hundreds chart and a second transparency of AlgeBot on top of it as shown.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

I move the upper transparency around until a student yells, "Stop." Then the students race me to find the total of the numbers inside AlgeBot. The total for the placement shown is 580. I always win this contest and boast that it is because I am so talented at mathematics. The students insist there is a trick and demand a rematch. After a few times, some of the students see a pattern and discover the trick. (Turns out I'm not a rocket scientist after all!) Once a few discover my secret, we explore the problem using algebra. The students notice that for any number on the chart, the number to the right is one more and the number to the left is one less. Also, the number beneath the given number is ten more and the number above it is ten less. This is always true no matter where AlgeBot runs. If we think of the number in its waist as n, then the following diagram shows the values of all ten numbers inside AlgeBot:



If we add the terms inside him, we get 10n + 20. It is a simple matter to look at the number in its waist (56), multiply it by ten (560), and add 20 (580). Many of my students say that they got the answer a different way. Often they simply look two spaces to the right of his waist and put a zero after the number. I express this algebraically on the board. The number two spaces to the right of his waist would be called n + 2. Putting a zero after it is the same as multiplying by ten. Thus their method is 10(n + 2). I show them that these are equivalent, being the distributed and factored forms of the same expression: 10n + 20 = 10(n + 2). AlgeBot works on any hundreds chart, even one that begins with –49 and ends with 50. It also works on a calendar, but the formula for its sum is slightly different. Challenge your students to find the formula when AlgeBot runs around on a calendar. This is just one of many algebraic explorations that can be made on the hundreds chart. If your students are like mine, they will want to explore all the "what ifs" they suggest. One time my students wanted to find out what happens to AlgeBot's formula when it is standing on its head. Now I was curious.

Extension Challenge students to invent new AlgeBots.

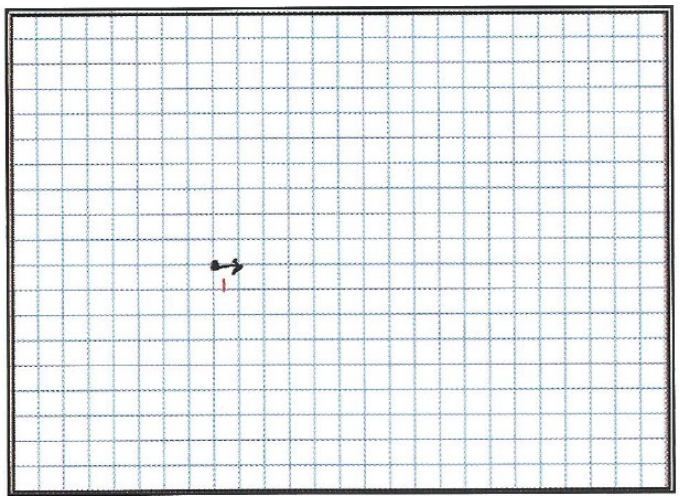
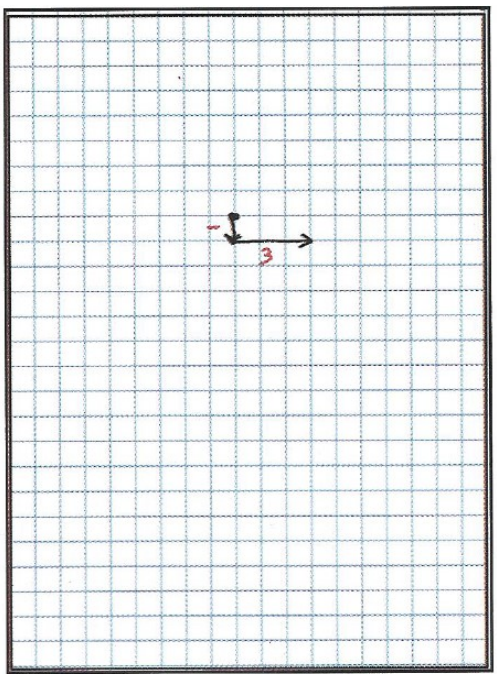
Drawing Repeating Sequences

Instructions

Obtain a grid that is 8.5 by 11.
Draw segments left to right.
After each segment is drawn, rotate the grid 90 degrees clock wise.

Try:

1, 3, 5, 7, 9, 1, 3, 5, 7, 9 and then stop.

First Term	Second Term
	

Answer the following questions and justify your answers.

1. Will a pattern emerge as terms continue to be drawn?

2. If the first 10 terms are drawn, will another sheet of paper be needed?

3. As more terms are drawn, will the segments eventually cross?

Continue drawing the repeated sequence, and explore the predictions above.

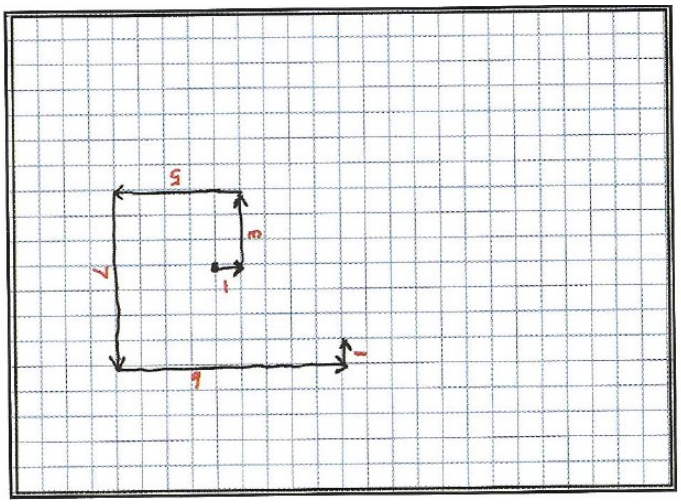
1, 3, 5, 7, 9, 1, 3, 5, 7, 9, 1, 3, 5, 7, 9, 1, 3, 5, 7, 9

Answer the following questions by exploring.

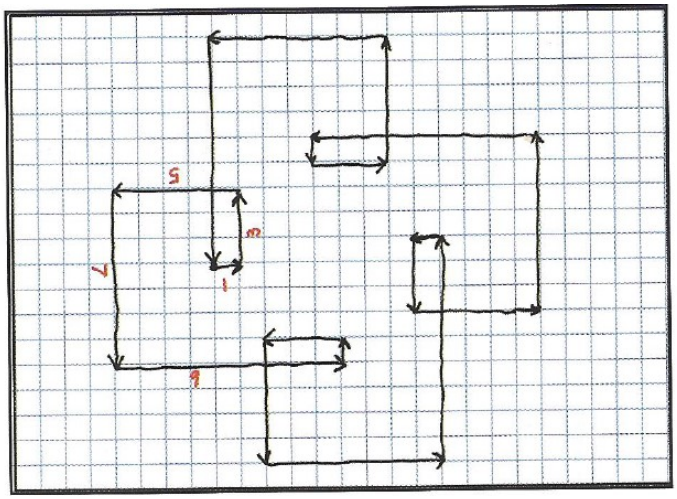
4. Is it possible to construct sequences with drawings that are familiar closed shapes (A square, rectangle, and a plus sign)?
5. Is it possible to create a sequences that doesn't repeat?

Generate your own drawing by creating a sequence.

Answers:



Complete drawing of the periodic sequence.



1. Yes. A four-fold rotation.

2. No. The pattern fits in one-page, because of the rotation.

3. Yes. Segments #5 and #9 will cross.

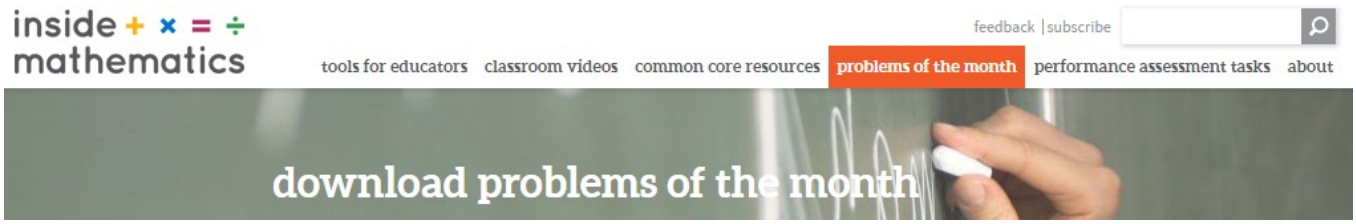
4. Yes. Examples: Square (3, 3, 3, 3, repeat), Rectangle (5, 3, 5,3, repeat), (2, 2, -2 (draw left instead of right), 2, 2, -2, repeat)

5. Yes. Example, 1, 2, 3, 4, etc.…)

Excerps from Ohio Journal Of School Mathematics (Volume 74, Fall 2016)
Michael Todd Edwards

Problems of the Month (Problems Website)

http://www.insidemathematics.org/problems-of-the-month/download-problems-of-the-month



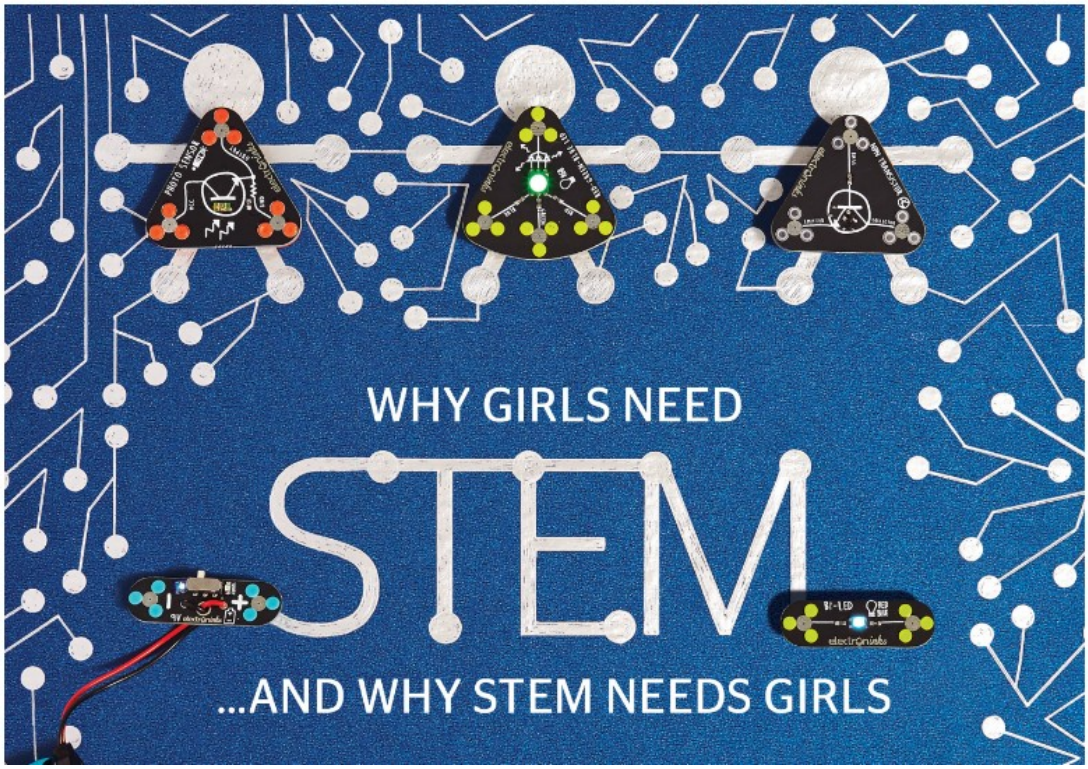
Why Do Girls need STEM? (Article)

http://www.todaysparent.com/kids/why-girls-need-stem/

Why girls need STEM and why STEM needs girls

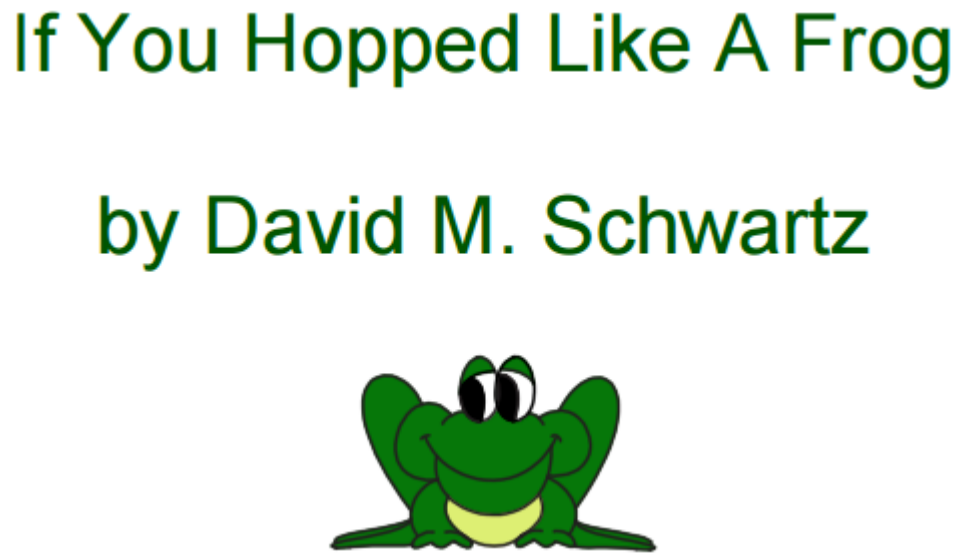
STEM: Science, technology, engineering and math are the future, and your daughter's going to want to be a part of it. Here's how.

by Kate Rae Updated Oct 3, 2016



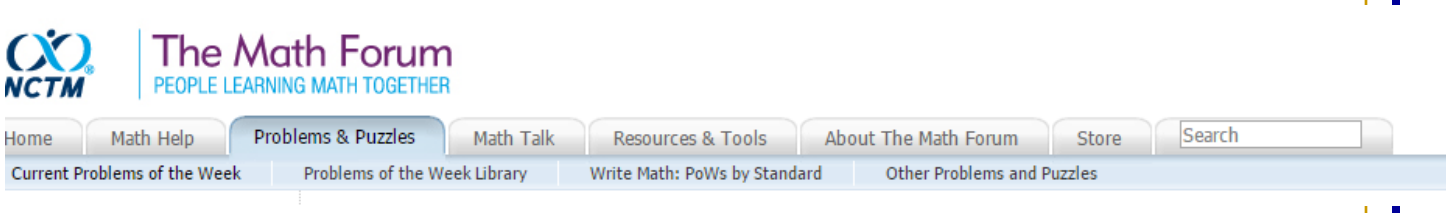
If You Hopped Like a Frog (Worksheet)

https://robisonlovesalgebra.wikispaces.com/file/view/If+You+Hopped+Like+A+Frog.pdf



Math Forum (Problems Website)

http://mathforum.org/pow/teacher/articles.html



Resources

These online resources were selected as examples of sites that are available online for educators to use to find lesson ideas, online projects, movie clips, and/or interactive games/activities to use to help make the mathematical content real. *(Hover over the title and press the "CTRL" key to go to the site.)*

California K-12 High Speed Network
This site is free to teachers who have an email address from a district. Places to share files and load podcasts.

Conceptual Math
Free, online tools for fractions instruction. These flexible fractions tools allow students to develop conceptual understanding, procedural strength and higher order thinking skills in this fundamental mathematics topic. Great for use on interactive whiteboards for whole-class instruction. Tools include fraction circles, horizontal and vertical bars, area model, dots (discrete), number line, benchmark fractions, unitizing with pattern blocks and more.

Dr. Math – the Math Forum
This is the site was created to help students (and teachers) find the answers to math problems.

Illustrative Mathematics
The Illustrative Mathematics Project will provide guidance to states, assessment consortia, testing companies, and curriculum developers by illustrating the range and types of mathematical work that students will experience in a faithful implementation of the Common Core State Standards, and by publishing other tools that support implementation of the standards.

Inside Mathematics
Welcome to Inside Mathematics, a professional resource for educators passionate about improving students' mathematics learning and performance. This site features classroom examples of innovative teaching methods and insights into student learning, tools for mathematics instruction that teachers can use immediately, and video tours of the ideas and materials on the site.

LBUSD-Curriculum: Mathematics: Teacher Resources
Long Beach Unified School District has a wonderful collection of PDFs that you can adapt for your own classroom. It is also good resource for math cognates to print out and has a pdf of math terms in other languages.

Math Assessment Project
The Mathematics Assessment Program (MAP) aims to bring to life the Common Core State Standards (CCSS) in a way that will help teachers and their students turn their aspirations for achieving them into classroom realities. Funded by the Bill and Melinda Gates Foundation, MAP is a project of the long-established Mathematics Assessment Resource Service (MARS) collaboration between the University of California, Berkeley, the Shell Center at the University of Nottingham, and the Silicon Valley Mathematics Initiative, working with school systems across the US and UK to develop improved assessment. The materials from this project will exemplify CCSS in explicit down-to-earth performance terms.

Math Circles
Mathematical Circles are a form of education enrichment and outreach that bring mathematicians and mathematical scientists into direct contact with pre-college students. These students, and sometimes their teachers, meet with mathematical professionals in an informal setting, after school or on weekends, to work on interesting problems or topics in mathematics. The goal is to get the students excited about the mathematics, giving them a setting that encourages them to become passionate about mathematics.

Mathematics in Movies
This site from Harvard has video clips of movies that have a math connections. Some are actual video clips, others might be a screen shot of a person standing in front of a blackboard that has an equation on it.

NCTM Illuminations
Illuminations is designed to provide standards-based (online) resources that improve the teaching and learning of mathematics for all students. Provide materials that illuminate the vision for school mathematics set forth in **Principles and Standards for School Mathematics.**

National Library of Virtual Manipulatives
This site has an easy matrix to help you narrow your search for the virtual manipulatives or activities you might be able to use in your lesson.

NRICH Home Page
This is the portal for this wonderful site from Cambridge University with interactive sites in many math topics. This project has problems, articles and games for teachers and students.

PUMAS
PUMAS is a collection of brief examples showing how math and science topics taught in K-12 classes can be used in interesting settings, including every day life.
The examples are written primarily by scientists, engineers, and other content experts having practical experience with the material. They are aimed mainly at classroom teachers, and are available to all interested parties via the PUMAS web site.
Our goal is to capture, for the benefit of pre-college education, the flavor of the vast experience that working scientists have with interesting and practical uses of math and science.

Project Lead the Way
Project Lead The Way (PLTW) prepares students to be the most innovative and productive leaders in Science, Technology, Engineering, and Mathematics (STEM) and to make meaningful, pioneering contributions to our world. PLTW partners with middle schools and high schools to provide a rigorous, relevant STEM education. Through an engaging, hands-on curriculum, PLTW encourages the development of problem-solving skills, critical thinking, creative and innovative reasoning, and a love of learning. The PLTW middle and high school STEM education programs give students a brighter future by providing them with a foundation and proven path to college and career success in STEM-related fields. STEM education is at the heart of today's high-tech, high-skill global economy. For America to remain economically competitive, our next generation of leaders must develop the critical -reasoning and problem-solving skills that will help make them the most productive in the world. PLTW sparks the ingenuity, creativity, and innovation within all of our students.

Smart Skies
Free, hands-on Distance-Rate-Time investigations in air traffic control. An effective and fun way to educate using multiple math methods, reality-based experiments, movies, and a web-based simulator.

SMILE (Science and Math Informal Learning Educators)
Are you looking for new ways to teach kids about math and science? Do you want activities that meet you where you live, whether your "classroom" is an active volcano, the shark tank at the local aquarium, or your own kitchen table? You've come to the right place. SMILE is collecting the best educational materials on the web and creating learning activities, tools, and services – all designed especially for those who teach school-aged kids in non-classroom settings.
Come to SMILE for science and math activities that you and the kids in your life will love. But come, too, for the community. We are encouraging educators to both use and contribute to the growing SMILE collection. People like you will make SMILE a meeting place for educators excited about what they do and ready to talk about how they do it.
SMILE is the Science and Math Informal Learning Educators pathway of the National Science Digital Library (NSDL).

Teachers' Domain
Teachers' Domain is an extensive library of free digital resources from public television and other leading media producers, designed for classroom use and professional development.

TeacherTube
This is a site that hosts online videos for teachers (by teachers). There are ads on the pages, but some of the moves are quite interesting and engaging. Search through the video clips to help math more entertaining or to get ideas from other teachers on how to teach a lesson.

National Library of Virtual Manipulatives
This site has an easy matrix to help you narrow your search for the virtual manipulatives or activities you might be able to use in your lesson.

PROFESSIONAL OPPORTUNITIES

Idaho Council of Teachers of Mathematics (ICTM)

October 6-7 2016

Boise, Idaho

National Council of Teachers of Mathematics (NCTM)

National Conference

April 5-8, 2017

San Antonio, TX

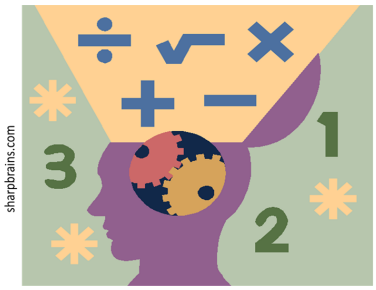
National Council of Teachers of Mathematics (NCTM)

Regional Conferences 2015

Chicago, Illinois

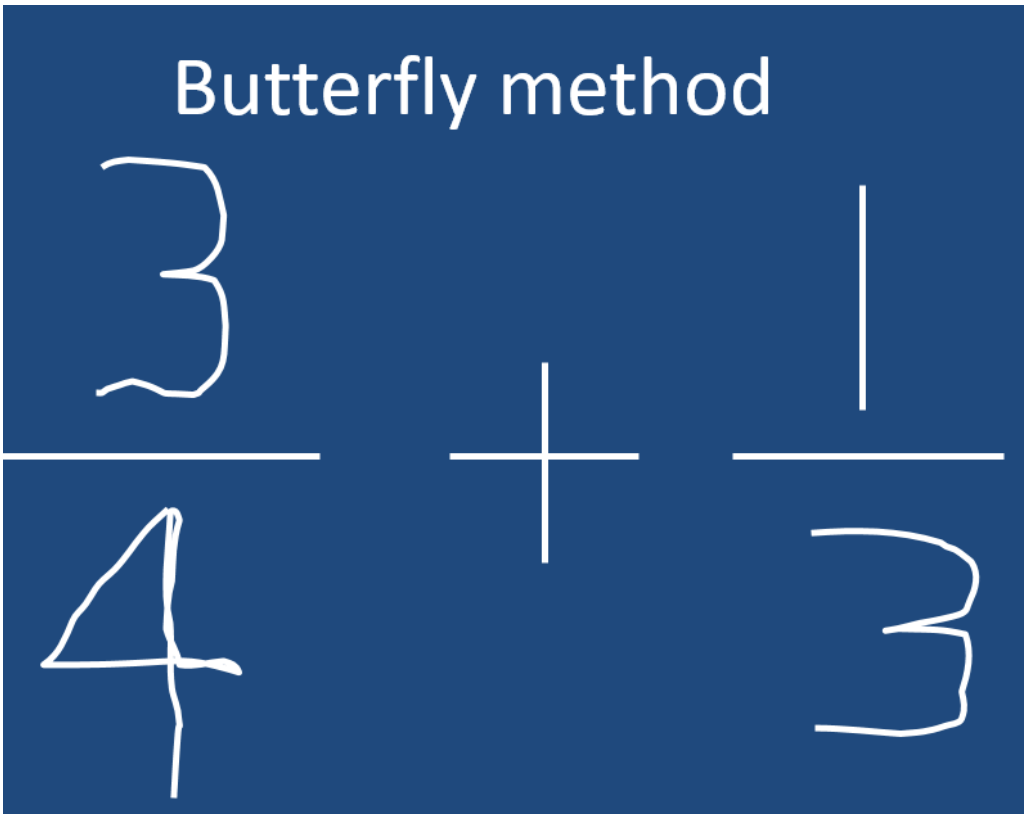
Hyatt Regency Chicago

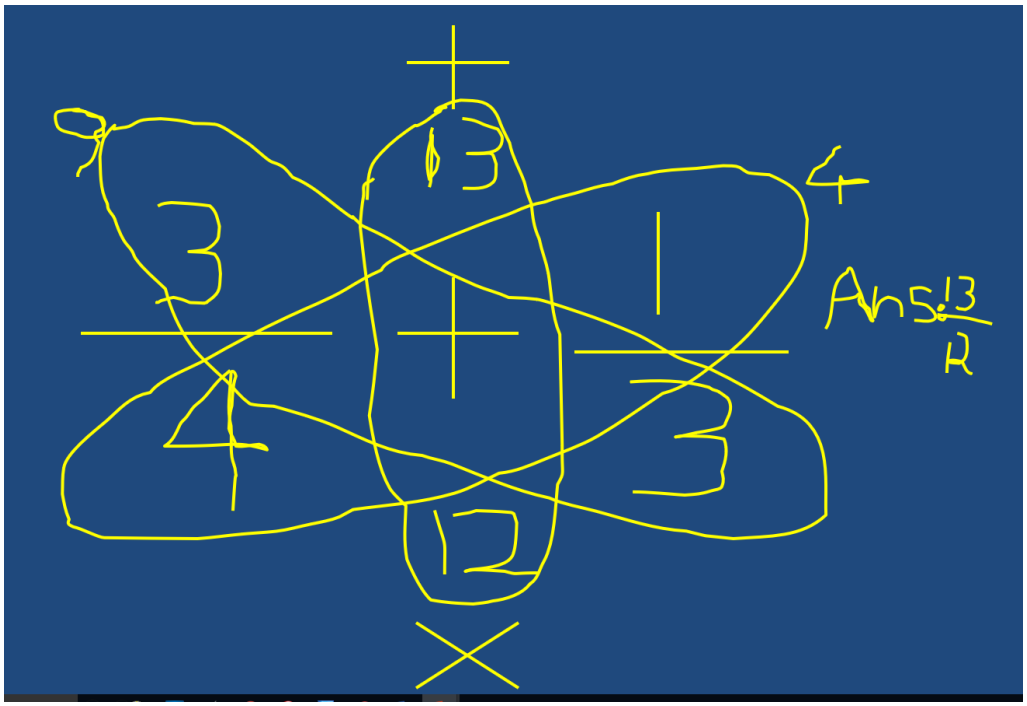
March 10-12, 2017



Butterfly Method to Add and Subtract Fractions

I found this method of adding and subtracting interesting.





MATH IPOD/IPAD APPS

Free

MegaPro Calculator 5000

App by by Chris Ternoey is a powerhouse of mathematical understanding. Addition and subtraction with regrouping are two of the most difficult concepts to teach. Combining a working knowledge of Base 10 with the procedures needed to correctly solve the problems can be overwhelming for many students. Teachers have struggled to find an easy way to introduce these concepts. This app has uncovered the secret! After spending some time learning about Maria Montessori's methods, Chris decided the calculator needed to be upgraded. Reimagine is what Chris has done. MegaPro has taken mundane numerical **calculations** and turned them into engaging numerical **interactions**

$2.99

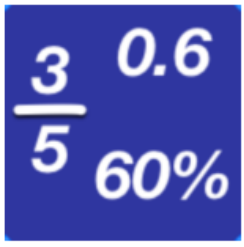
Mathie – Preschool Number Skills Game

The game is simple to learn – feed a little animal type monster the cookies that he wants and in the order he wants. Just be sure to deliver them directly into his mouth! Intermittent rewards are offered as natural breaks to decorate your little monster's world. I love how this game is multidimensional in its use. It not only teaches counting and patterns but also precise visual scanning and motor planning/targeting. Use of a stylus will help kid's get used to holding a writing utensil without the added pressure of making specific marks. Those can be refined and shaped later. Design features are of course whimsical and not too overstimulating, allowing little ones to process the requests made. This is a must have for preschool teachers.

$7.99

Hop Star: Fun Visual Math Learning Game for Grade 1 to 5 Kids

This App is designed primarily as a fun mobile game and then integrated with challenging visual and mental math problems. The game centers on solving a series of problems or sequencing priorities for logical mathematical thinking. Once a series is solved, kids get the pleasure of playing a classic "Frogger type" game getting an animal across many streams. You have to admire the design – as the reinforcer is continuously teaching math concepts of space and force. Graphics are stellar and take you on a trip in the way-back machine. However, for the life of me, I couldn't get that little guy over the water without a splash or a bang!



$0.99

Compare all Fractions

In this app, kids are challenged throughout 4 levels of difficulty. Fractions are compared in all their forms, including decimals and percentages. It is up to the user to determine if the two fractions are less than, equal, or greater than in comparison with each other. The interface is direct with a no-thrills presentation. This keeps the focus on the task, and keeps the pictorial in the mind about numbers without extraneous stimuli – and this is so important for special need's kids. You can guess of course, but wrong answers are recorded as well as time and points so that kids can see improvement and where they may need to work. The quiz is over in 20 questions and is copied to the clipboard, so teachers can review data for progress reports or email results to parents. (For kids 9-11).

FREE DAILY APPS FOR IPOD/IPAD

Find great apps without spending a dime! Get high quality paid apps for free each day. Unlike other apps, AppChronicle offers no paid listings. These are expert-picked top-ranked apps, and they are for FREE! The only work is that you have to check daily.

http://appchronicles.com/category/apps-gone-free/

USEFUL WEBSITES

PhET
PhET: Free online physics, chemistry, biology, earth science and math simulations
https://phet.colorado.edu/

Class Flow
Send quizzes, polls and open-ended activities to student computers and tablets.
https://classflow.com/

Polls Everywhere
Collect data while interacting with your students. It is a simple text messaging voting application. The poll is embedded within the presentation or web page and will update in real time.
http://www.polleverywhere.com/

Socrative
Through the use of real time questioning teachers can gauge the whole class' understanding of content throughtablets, laptops and smartphones.
http://b.socrative.com/login/student/

Quizlet
Quizlet's online flashcards, tests, and study games make learning fun and engaging for students of all ages.
http://quizlet.com/

QuizStar
Quizstar is a free, online quiz maker that allows you to manage your classes, assign quizzes, and generate reports of quiz scores and student performance.
http://quizstar.4teachers.org/

Kahoot
Create and play quizzes, discussions or even surveys (which are called Kahoots) using any device with a web browser… including a laptop, iDevice, Android, or PC's
https://getkahoot.com/

Kathy Schrock's Guide to Everything Website
Looking for great rubrics and additional assessment links? Check out Kathy Schrock's Guide to EverythingWebsite
http://www.schrockguide.net/assessment-and-rubrics.html

ICTM Board Addresses

ICTM BOARD	Name	Address	City, State, ZIP	Phone	E-mail
President	Ashley Henderson Sage International School	2929 Nez Perce	Boise, ID 83705		ashley.henderson@ sageinternationalschool.org
President Elect	Jennifer Palmer Madison High School	126 K St.	Rexburg, ID 83440	757-9687	palmerj@msd321.com
Kim Zeydel	PO Box 1981	McCall, ID 83638	634-8018		kmzeydel@gmail.com
	Meridian Academy	2311 E. Lanark	Meridian, ID 83642	855-4315	zeydel.kim@westada.org
Secretary	Leora White	414 Sunnyside	Caldwell, ID 83605	454-2792	
	Lonestar MS	11055 Lonestar Rd	Nampa, ID 83651	468-4745	lwhite@nsd131.org
Treasurer	Lucinda Bingham	185 N 200 W,	Weston, ID 83286	747-3208	lbingham208@aol.com
	West Side High	775 N West Side Hwy	Dayton, ID 83232	747-3411	lbingham@wssd.k12.id.us
NCTM Rep.	Jan Devore	344 N. 5th Street	Payette, ID 83661	642-2571	jndev@q.com
	Westside El. School	609 N. 5th	Payette, ID 83661	642-3241	jadevore@payetteschools.org
Membership	Danielle Desjarlais	2593 S. Phillippi St.	Boise, ID 83705	610-6523	
	West MS	28 S. Midland	Nampa, ID 83651	268-4750-	ddesjarlais@nsd131.org
Newsletter	Maria Ayala-Marshall	435 Pebble Beach Way	Eagle, ID 83616	939-6355	malikamath@aol.com
	Eagle High School	574 N. Park Lane	Eagle, ID 83616	350-4235	ayala-marshall.maria@ westada.org
Region 1	Katie Pemberton	717 E. Wallace Ave	Coeur d'Alene, ID 83814	755-7877	KPemberton@cdaschools.org
2012-2017	Canfield Middle School	1800 E. Dalton Ave	Coeur d'Alene, ID 83815	664-9188	KPemberton@cdaschools.org
Region 1	Abe Wallin	1031 N. Academic Way	Coeurd 'Alene, ID 83814		wallin@uidaho.edu
2009-2019	Region 1 Math Specialist				
Region 2	Christina Tondevold	2360 Michigan Ave #9	Orofino, Id 83544	mathematicallyminded@yahoo.com	
2009-2017	Region 2 Math Specialist				
Region 2	Donna Wommack	1151 Jones Rd.	Genesse, Idaho 83832		dwommack@sd282.org
2015-2019	Genesse Elementary	330 W. Ash	Genesse, Idaho 83832		
Region 3A	Brenda Gardunia	103 W. Orcutt Lane	Nampa, ID 83686	559-7952	brendagardunia@gmail.com
2012-2017	CWI				
Region 3A	Sue Darden	1858 W. Santa Clara St	Meridians, ID 83642	869-8522	dardenseu@masn.com
2015-2019	Galileo STEM Acadey	4735 W Saguaro D	Eagle, ID 83616	350-410d	arden.sue@westada.org
Region 3B					
2015-2019					
Region 3B	Penny Burleson				penny@cascadeschools.org
2015– 2019	Cascade Jr./Sr. HS				
Region 4	Terri Matthews	30 West 208 South	Burley, ID 83318	678-8696	ter410@pmt.org
2001-2017	Burley High	2100 Parke Avenue	Burley, ID 83318	878-6606	matterri@scasslasschools.org
Region 4					
2015-2019					
Region 5	Penny Bassett	PO Box 274 St.	Charles, ID 83272		pennybassett@ymail.com
2012-2019	Bear Lake Middle School	633 Washington St.	Montpelier, ID 83254	847-2255	pbassett@blsd.net
Region 5	Kathy Grumbein				
2015-2019	Hawthorne MS				grumbeka@sd25.us
Region 6	Lourene Praeder	3770 E. 200 N.	Rigby, Idaho 83442	521-8376	louranaw@yahoo.com
2007-2017	Rigby High School	290 N 3800 E	Rigby, ID 83442	745-7704	lpraeder@sd251.org
Region 6	Susan Sterzer	3800 E. 25 N.	Rexburg, ID 83442	745-6661	ssterzer@ririe252.org
2013-2017	Ririe High School				
College Private	Richard Pieper	976 McJon Lane BYU Idaho	Rexburg, ID 83440		pieperr@byui.edu
College Public	Jonathan Brendefur	Boise State University 1910 University Dr.	Boise, Id 83725	426-2468	jbrendef@boisestate.edu
College Public	Tatia Totorica	Boise State University 1910 University Dr.	Boise, Id 83725	867-6736	tatia.totorica@gmail.com

FROM THE DESK OF ASHLEY HENDERSON
ICTM PRESIDENT