

**Title of Session:** ENC Math and Science Fair

**Moderator:** Gail Hoskins and Tracy Crow

**Title of File:** 20050301encfair

**Date:** March 1, 2005

Room: After School Online Room

**GailH:** Hello all. We are getting to be quite a crowd.

**GailH:** We usually begin with brief introductions, and now that David is here, we'll ask him to begin!

**GailH:** But, if he is still thinking about it, anyone can start.

**TracyC:** I work at ENC with Gail. I work on the ENC web site, particularly on ENC Focus, and also on professional development projects.

**SusanR:** K to 8 Occasional Teacher from Ottawa, Ontario and K to 3+ Great Resources presenter here at TI

**JudyB:** Director of Mathematics Curriculum at Kaplan K12 Learning Services.

**GailH:** I am Gail Hoskins, your presenter tonight. I am outreach coordinator at the Eisenhower National Clearinghouse (ENC). Before ENC began 12 years ago, I was a high school math teacher and K-12 math coordinator. Now I do K-12 math and science events nationally for ENC. (I live in OH, but I've lived in a number of others too.

**DougSy:** My name is Doug Symington, I'm an online M.Ed. student at OISE/UT and live in Victoria BC where I do instructional design and 'net-based consulting. I'm especially interested in open source in education

**GailH:** We'll wait for more introductions.

**BJB2:** I'm an art teacher in Pennsylvania and always excited about math and art connections.

**DavidWe:** I'm David Weksler. I've been helping teachers learn more about technology with respect to math and science since the Math Forum began in 1992

**JeffC:** I'm Jeff Cooper, facilitator of the Math and Science forums here, also Helpdesk, and formerly the Education Technology Specialist for the College of Education at Pacific University. I welcome all of you, and Gail, here today to be part of this discussion.

**AmyST:** I am Amy Truckenmiller and I work in Rockville, Maryland, as a middle school math teacher!!..and I'm new to TI.

**VanL:** I'm Van Le. I am an UG at UH and currently studying to be a middle school math teacher

**GailH:** A special welcome to Amy then

**GailH:** BJ, would you care to give your usual good advice to get us started?

**BJB2** nods

**IhorC:** I'm at Stevens tech in Hoboken, NJ and work with teachers to help them with math and technology

**BJB2:** a reminder if you are new to Tapped In...

**BJB2:** go to the actions menu in the top right of your chat window and click on DETACH

**BJB2:** this will make your chat window larger and easier to read

**JeffC:** then maximize that window.

**DougSy:** thnx, that's better

**BJB2:** then fasten your seatbelts for a wild ride!

**JeffC:** you may also enlarge the font if you care to.

**GailH:** Are you implying things about my driving?

**GailH:** OK, ENC stands for Eisenhower National Clearinghouse and is a K-12 math and science teacher resource center.

**GailH:** This is a two-hour event, and we'll cover math and science K-12 (not to imply only the broad K-12, some will be fairly grade specific.)

**BJB2** chuckles and wonders if we're going on any roller coaster rides?

**GailH:** I have one, BJ.

**DavidWe . o O ( water slides, water slides )**

**GailH:** There were two themes in the blurbs you may have read.

**GailH:** One of those was about Peanut Butter Lovers' Day.

**GailH:** And the other was about this being a math and science fair.

**GailH:** We'll deal with both. Ready?

**SusanR** worries about Peanut Butter Lover's Day..so many peanut free classrooms

**GailH:** Susan, and that is why the allergy issue is the first thing on that page.

**GailH:** We can celebrate peanut butter and peanuts (and related) and never have the stuff around.

**SusanR:** Great Gail

**DavidWe** celebrates chunky peanut butter all the time

**GailH:** So, as a part one of this event, before I take you to the page about that, I'm going to say the url and let everyone click on it and do any window arranging that is helpful for them.

**GailH:** ENC is <http://www.enc.org> Can you just get that page up and then come back and say you're ready.

**AmyST** is ready!!

**GailH:** If you need help, just say help, and you'll get it (from a number of friendly experienced folks here.)

**BJB2:** if you have a pop up blocker hold down the ctrl key on your keyboard as you click on the link

**GailH:** Since no helps have gone out, I'll continue.

**GailH:** One of my favorite places at ENC is Classroom Calendar. We have units or entries that staff at ENC have created that are thematic. The audience is teachers -- it is not intended to be a place to send students, but a source of ideas for teachers.

**GailH:** The entries on Classroom Calendar are varied. They are associated with a specific date (even if the date is contrived), but there is a list by subject category, and there is certainly not the expectation that you would only find them useful on that date.

**GailH:** For example, when would you think of looking for Pi Day?

**DavidWe** goes "ooh, ooh"

**BJB2** smiles and also raises her hand

**AmyST** . o O ( on a Monday pretty soon, maybe?? )

**GailH** When and why, someone?

**BJB2** thinks Gail's audience is really on the ball!

**JudyB**: March 14th

**DougSy**: 3.14

**GailH**: Great.

**GailH**: How about the Hundredth Day of School? About when would it be celebrated?

**DavidWe** thinks Judy had the answer in advance

**BJB2** . o O ( the 100th day or what SEEMS like the 100th day? )

**GailH**: Either, but how about the real one? ABOUT when?

**TracyC**: After winter break sometime?

**SusanR**: February

**AmyST**: around the beginning of Feb

**DavidWe** guesses 5 months after the start of school

**GailH**: Yes, sort of past the time high schools have mid-year exams, but it varies greatly.

**GailH**: What about Dozen Day?

**GailH**: How about the one about Hurricane Hugo? Or the one on Ben Franklin and Lightning?

**VanL**: January 17

**SusanR**: March 12th..dozen day..April 12th

**VanL**: dozen day: Dec 12

**BJB2** thinks Gail has stumped the panel

**BJB2** . o O ( 12.12? )

**GailH**: And Hugo Day would be on the anniversary of it (in Sept.).

**BJB2:** or the 144th day of school?

**SusanR:** of course

**DavidWe** likes BJ's answer

**GailH** . o O ( there are many good answers here. )

**DavidWe** . o O ( The day all the students bring a carton of eggs to class? )

**TracyC** thinks Van is right!

**GailH:** But what about Forensic Friday: CCSI -- Classroom Crime Scene Investigation?

**DavidWe** smiles

**DavidWe** . o O ( math AND alliteration )

**GailH:** That is the name of a great unit (I think great anyway). So some we just stick on days -- like hanging them there.

**AmyST:** that's great!!

**GailH:** But Peanut Butter Day is really today.

**GailH:** Can you take a look at Peanut Butter Lover's Day (Grades K-8)  
<http://www.enc.org/features/calendar/unit/0,1819,269,00.shtm>

**SusanR** grabs a spoonful of peanut butter to get in the mood

**GailH** hopes Susan brought it to share.

**DavidWe** looks for his spoon

**GailH:** We'll take 3 minutes to explore and then talk about this page and its links.

**JeffC:** Click the link and be sure to come back to this window. If you have a popup blocker hold down the control key and click.

**TracyC** can't talk because her mouth is full.

**BJB2** laughs...of peanut butter?

**BJB2** sees if Tracy can whistle

**DavidWe** grins

**DavidWe:** Has Peanut Butter Day happened in previous years on this date, Gail?

**DavidWe** . o O ( ...Lover's Day... )

**GailH:** Our calendar is a perpetual one, so each entry is there every year (but we keep adding them, a few a month)

**DavidWe** nods

**GailH:** One of the things that I find great is the found a peanut song.

**TracyC:** this is an actual holiday, I believe. Not an ENC created one!

**DavidWe:** Any idea when it became a holiday?

**VanL:** This is the first time I heard about it

**GailH:** It definitely is a "real" day.

**DavidWe** smiles

**DavidWe** believes Gail

**IhorC:** Every day can be peanut butter day.

**BJB2** agrees.

**GailH:** One of the activities linked off to from this is about "getting to know your peanut" - where (in a peanut-allowed classroom) students each take one from the bowl and learn to "describe" it -- what is unique about THEIR peanut that would let them pick the very same one out again.

**DavidWe:** I've been reading that one, Gail. Interesting exercise

**GailH:** Another is a link to a page on writing directions. Students each write the directions for making a peanut butter sandwich, and then a classmate reads their work out loud and a third student follows the directions exactly (and nothing else).

**JudyB:** I've done that one - lots of fun

**GailH:** You'll notice at the bottom of the page is a link to the standards addressed in this unit.

**DavidWe** nods

**GailH:** I am about to say a real mouthful...

**GailH:** of words.

**DavidWe** listens

**GailH:** I am going to paste it in, and you'll see several different Classroom Calendar entries listed.

**GailH:** I am going to ask you just to let them sit there, and not run off looking for a moment.

**DavidWe** understands

**GailH:** Ratio, Proportion, and Mount Rushmore: Sculpting on a Monumental Scale (Grades 6-10) <http://www.enc.org/features/calendar/unit/0,1819,248,00.shtm>

**GailH:** and Mole Day -- Celebrating 6.02 X 10<sup>23</sup> (Grades 7-12)  
<http://www.enc.org/features/calendar/unit/0,1819,6,00.shtm>

**GailH:** and 100th Day of School (Grades K-6)  
<http://www.enc.org/features/calendar/unit/0,1819,105,00.shtm>

**GailH:** and Looking at Snowflakes (Grades K-6)  
<http://www.enc.org/features/calendar/unit/0,1819,171,00.shtm>

**GailH:** and Let It Snow! (Grades 7-12)  
<http://www.enc.org/features/calendar/unit/0,1819,143,00.shtm>

**GailH:** and WinterChem: Ideas for Chemistry Lessons with a Winter Theme (Grades 6-12) <http://www.enc.org/features/calendar/unit/0,1819,286,00.shtm>

**GailH:** Pi Day (Grades 6-12)  
<http://www.enc.org/features/calendar/unit/0,1819,34,00.shtm>

**GailH:** Bats (Grades 1-8) <http://www.enc.org/features/calendar/unit/0,1819,1,00.shtm>

**GailH:** OK, when I say go (but not until) I am going to ask you to go off to ONE of those and explore for 3-4 minutes and come back prepared to share something you like/dislike/would change.

**DavidWe** nods

**GailH:** But, you have to go to one that others are also going to. So, please say out loud your choice and pair up.

**GailH:** But don't go until I SAY go , please.

**IhorC:** Pi Day

**AmyST:** Pi Day!

**DavidWe** laughs

**VanL:** ratio, proportion, and Mount Rushmore

**TracyC:** Bats

**JudyB:** ratio, proportions...

**DavidWe** looks at Gail

**GailH:** Can David be a Bat with Tracy?

**DavidWe:** Sure

**SusanR:** Pi Day

**GailH:** Does everyone know where they will go?

**DavidWe** . o O ( bats with Tracy )

**GailH:** OK GO -- for 3 -4 minutes, then run back.

**GailH:** It is ok to talk to your partner in particular (in the private chat, if you know how!

**GailH:** Need more time, or have you had a chance to explore some?

**DavidWe** has read some

**AmyST** has explored a few links

**JeffC** is at Mole Day

**JeffC** remembers using a slide rule.

**GailH** feels like she should blink the lights to get attention, or ask people to raise fingers to show how much more time they need.

**DavidWe** is ready to continue

**GailH:** I remember a slide rule too? I bet we have folks here who never used one other than as an antique.

**IhorC:** found a new discovering Pi applet that I like

**GailH:** Can someone share about what you read please?

**JeffC:** You can announce and have them come back... that will give them a tickle bell.

**DavidWe:** Oh, cool Ihor

**GailH:** Anyone else?

**IhorC:** my favorite applet for determining Pi is not on that page. I should share it with Gail

**DavidWe** nods

**DavidWe:** Bats are revered in China. They represent wisdom and good fortune, somewhat unlike the usual American sense about them

**JeffC** . o O ( mole day is cool )

**GailH:** And that Ihor, is what we'll do in just a moment (b/c in a Fair, and this is a math and science Fair) there are lots of exhibits, and I'm hoping you'll share it then.

**DavidWe** . o O ( Mole the animal or mole the quantity? )

**AmyST:** I found an activity where students create a Pi Day Necklace out of different color beads. The students assign each number to a specific color and create a necklace using the numbers of pi as a guide. A triangular pendant is the whole number 3, and the beads represent the decimals... seems rather interesting!!

**JeffC:** I'd hand out slide rules along with calculators and have them calculate. Cool Amy.

**DavidWe** wonders if Jeff has any circular slide rules

**GailH:** Mole day gets more traffic than almost any other Classroom Calendar. (And I think the ideas of more than one kind of mole is a positive.

**DavidWe:** Is it the animal mole?

**GailH** waits for David to decide.

**DavidWe** should probably go and look

**GailH:** In case you haven't noticed -- over in the left navigation, you'll find the By Category page.

**GailH:** By category page: <http://www.enc.org/features/calendar/category/>

**GailH:** It lets you see a subject-like list of the various Classroom Calendars (and shows grade level intended).

**DavidWe** reviews the transcript successfully

**DavidWe:** Nice feature, Gail

**GailH:** Thanks, David.

**GailH:** Ihor's comment earlier...

**JeffC:** 6.02 x 10 to the 23rd... those were the days... balancing equations in Mr. Beck's Chemistry class.

**DavidWe** nods

**DavidWe** majored in chemistry

**DavidWe:** I KNOW that one

**GailH:** that his favorite applet about Pi wasn't there on that page, leads me to a couple of things.

**TracyC:** I know one thing about applets!

**GailH:** OK Tracy, what?

**TracyC:** This month's Digital Dozen has several web sites with good java applets.

**TracyC:** <http://www.enc.org/features/dd/>

**TracyC:** for math and science both

**GailH:** For the benefit of folks new to ENC, can somebody else describe what Digital Dozen (DD) is please.

**GailH** thinks everyone may be applet-ing away.

**VanL:** can I guess?

**GailH:** Please do.

**DavidWe** listens

**JeffC** subscribes to Digital Dozen and recommends all the science educators here do so as well.

**VanL:** is it where 12 sites are posted each week so people can go to find out more about a certain topic?

**GailH:** Very close (it is once a month).

**DavidWe** smiles

**GailH:** And it has been happening for almost 10 years. So there is quite a archive.

**IhorC:** Found another Buffon Needle Applet on the digital dozen site. Thanks.

**GailH:** And there is a very high standard for what site gets selected.

**DavidWe** smiles

**VanL:** I really like this

**VanL:** I think I will take a look at them a lot in the future

**GailH:** Ihor is not waving his own flag enough. How many sites have you (or others at CIESE) had make the Digital Dozen over the years, any idea/

**TracyC** counts on her fingers...

**DavidWe** knows that ENC was very nice to feature the Math Forum a lot

**IhorC:** I've only had a couple, but my colleagues have a quite a few.

**DavidWe:** but CIESE altogether...?

**IhorC:** It's a long list...

**DavidWe** smiles

**GailH:** It isn't about niceness (although we are!!) it is about their being such good sites.

**GailH:** Ihor, please give the direct url to your particular site.

**IhorC:** <http://cieese.org/noonday>

**GailH:** Can you intro it briefly for us -- and we'll all go look.

**TracyC** guessed Noon day was Ihor's site!

**DavidWe** will be helping Ihor wave Ihor's NoonDay flag at a science/math fair next week

**IhorC:** Good timing. I just sent out invitation emails for the noon day collaborative project.

**DavidWe** smiles

**IhorC:** We recreate a measurement that Eratosthenes did 2200 years ago....

**IhorC:** By measuring shadows at different places on the earth you can come with an empirical value for the circumference of the earth.

**IhorC:** if you're interested you can sign up for it at the website.

**DavidWe:** How many people participated last year, Ihor?

**GailH:** This is the ENC record for Ihor's site <http://www.enc.org/resources/records/full/0,1240,018207,00.shtm> and if you scroll down that page, you'll see how many times it has received attention from ENC.

**IhorC:** We average about 100 classes of students (grades 5-12) who participate

**DavidWe** nods

**TracyC:** How many years have you done it?

**DavidWe** thinks it is something less than 2200

**IhorC:** I first tried it in 1972, but started the collaborative in '98

**GailH:** There are other CIESE projects -- various grades, etc. at <http://www.k12science.org/collabprojs.html>

**GailH:** That was featured in last month (Feb)'s Digital Dozen.

**IhorC:** Now you're talking!

**TracyC:** Most of these projects start up this month.

**IhorC:** I've have some outstanding colleagues at our center who have been this stuff since the internet was possible.

**SusanR** is interested in Bucket Buddies

**GailH:** And most happen twice a year, so it is something a teacher may want to dabble in now and do for real next time too.

**IhorC:** Please join! Carol Shields is the coordinator of the project. Tell her that you met me here.

**DavidWe** smiles

**GailH:** Thanks Ihor.

**GailH:** Another CIESE project I've enjoyed is...

**GailH:** Down the drain : how much water do we use?  
<http://www.k12science.org/curriculum/drainproj/> ENC-018945

**SusanR** looking at that one right now!!

**GailH:** It looks at water use and introduces spread sheets, etc. I must have shown that one to 20 or 30 different conference groups over the years.

**IhorC:** Sure. In the Noon day project I've had people tell me that just registering was exciting and they would be back next time to actually participate. and they do!

**DavidWe:** It's always very nice to get that kind of feedback

**TracyC:** such a wonderful use of the Internet.

**GailH:** I'm going to share another site --on an entirely different theme, if we are ready to move on.

**AmyST:** These projects are excellent, thank you!

**GailH:** A maths dictionary for kids <http://www.amathsdictionaryforkids.com/> ENC-026796

**GailH:** Try a few words (like bar graph) and see what happens.

**SusanR:** the only thing I would have to do is convert gallons into the metric system..litres

**DavidWe:** You Canadian!

**DavidWe** likes the math dictionary

**GailH**: Some are more interactive than others, but I have been very impressed with it.

**GailH**: Anyone find a particularly cool "word" ?

**SusanR**: Create a Graph .. <http://nces.ed.gov/nceskids/graphing/>

**DavidWe** . o O ( "order of rotational symmetry" )

**AmyST**: equivalent fractions has a neat drag and drop feature

**VanL**: oh..this is cool

**GailH**: Sue's Create a Graph has great features too.

**SusanR**: The site has recently been updated

**GailH**: Some of you may find <http://tapor1.mcmaster.ca/%7Esgs/maths/> particularly appropriate.

**TracyC**: I will take note of your site, Susan, for ENC...I haven't seen that one recently.

**GailH**: It won ENC's Digital Dozen award in August, and then the person who created it changed universities, and it took 3-4 months to get back. (ENC removed it temporarily from that DD until it was back and then restored it.)

**GailH**: On the Alive Maths there is a frog jumping activity, which is one of the richest mathematical thinks like it.

**IhorC**: It's one of my favorites too.

**GailH**: I participated in a couple of Marilyn Burns institutes over the years and this is just so like her work that I was amazed.

**TracyC**: Gail demonstrates her good teaching skills when she gently helps other staffers work through these.

**DavidWe** smiles

**GailH** . o O ( poor Julia was almost in tears trying that! )

**GailH**: Another site is Who wants to win \$1,000,000? : the science game  
<http://education.jlab.org/million/> ENC-018103

**GailH:** It actually does the game, with Science questions.

**GailH:** These sites that I am showing have been featured on ENC, but it is much easier to share them to give the direct url.

**DavidWe:** Jumping frogs is the "Traffic Jam" activity

**TracyC:** But you don't actually get money. Darn.

**DavidWe:** . o O ( different graphics )

**GailH:** yep -- but it took me ages to see that. I am quite slow at times.

**IhorC:** Suzanne Alejandre from the Math Forum introduced me to Traffic Jam which is variation of the frog and we collaborated on a lesson together that she did when she was still teaching in California.

**GailH:** ONE of several reasons to use ENC Online at <http://www.enc.org> is b/c of its clearinghouse functionality -- to find great web sites.

**SusanR:** Suzanne's Appleworks tessellation activity is one of my favourites

**GailH:** But ANOTHER reason, and one I'd like us to look at, is b/c of ENC Focus where every week we do a new online issue.

**GailH:** Tracy is head guru of this, but may I show one example and then let her talk a moment.

**TracyC** nods

**DavidWe** bows to Tracy, head guru

**GailH:** When I say the name and url of this particular Focus, I want to give everyone a warning.

**GailH:** When (in next few minutes) we give a Focus url, the navigation for that particular issue is on the RIGHT -- not the left. So you may need to adjust your window. So think RIGHT, and then, please look at...

**GailH:** Middle School Geometry from Different Angles  
<http://www.enc.org/features/focus/archive/midgeometry/>

**DavidWe:** Oh, cool stuff, Gail

**GailH:** Two minute max to explore.

**DavidWe** nods reluctantly

**GailH:** Each part of it is my favorite -- with the interactive part the most. But I think it does a great job of showing all the different ways.

**DavidWe** looks at [www.math-kitechture.org](http://www.math-kitechture.org)

**GailH:** What about it David?

**DavidWe:** Well, my sister is an architect...

**DavidWe:** I like the name

**DavidWe:** I'm exploring

**GailH:** OK -- nothing like putting you on the spot!

**GailH:** Anyone have something they saw to share?

**VanL:** Figure and Ratio of Area is a great site to send kids to

**GailH:** For what grades would you suggest it?

**VanL:** I think 5th or 6th grade students

**TracyC:** Speaking of middle school math kids, can I share another favorite issue of Focus, Gail?

**GailH** listens to Tracy.

**TracyC:** The issue we just looked at is a good example of resources and web sites for specific topics. But this one takes a slightly different path:

<http://www.enc.org/features/focus/archive/ideasmmath/>

**TracyC:** You'll see it features teacher ideas, teacher stories. Take a couple minutes to look

**DavidWe:** Looks good

**VanL:** the petal around the rose is cool

**GailH:** The Petals Around Rose activity is a rich activity (and would be of special interest to special ed teachers, perhaps, b/c of the one student in it.

**Crystale:** any math & science resources shared tonight for ESL students?

**TracyC:** I'm not sure we've mentioned anything specifically, Crystal.

**SusanR:** Music integration with math Music, Movement, and Math

**DavidWe:** There have been a lot of GREAT math/science resources, though.

**TracyC:** And tons of Internet resources with java applets/demonstrations--might work well with ESL students.

**DavidWe:** One of the sites (math à vivre) was in French and English

**TracyC:** Looks like Susan has discovered elementary ideas!

**SusanR:** music and movement can enhance and benefit many curriculum areas

**CrystalE:** I'd be interested in knowing more about the sites with the java applets

**GailH:** Oh, yes.

**SusanR:** Hope this long URL works

<http://www.enc.org/features/focus/archive/ideaselmath/document.shtm?input=FOC-003552-index>

**GailH:** The transcript for this will be posted in the archive place, or you can get in touch with [ghoskins@enc.org](mailto:ghoskins@enc.org) and I can share it sooner.

**BJB2** . o O ( [www.tappedin.org/transcripts](http://www.tappedin.org/transcripts) )

**TracyC:** We had a music integration web site this month in Digital Dozen--for slightly older kids: <http://www.exploratorium.edu/music/index.html>

**TracyC:** Have others seen ideas they want to share?

**GailH:** For those of you who don't recognize Susan here, she does a twice monthly event here at Tapped In for K-3 Great Resources. Each with a theme. And b/c we have been talking about math and science fairs, Susan, is it OK if I share the url to your handout about real fairs?

**IhorC:** Sorry, I have to leave. Nice to meet all of you. I'll read the rest of the transcript later this evening.

**SusanR:** absolutely, of course

**TracyC:** Thanks for coming, Ihor.

**GailH:** It is long too, but should work.

**GailH:**

<http://trackstar.4teachers.org/trackstar/ts/viewTrack.do;jsessionid=F8FE640AE8D2CAA360F98A17B63FFD81?number=150858>

**GailH:** Thanks for coming Ihor, it is always great to have you join us.

**BJB2:** I had a couple resources...not sure if you may have already covered them

**BJB2:** Marco Polo - Energy: Harnessing the Power of Nature

**BJB2:** <http://www.marcopolo-education.org/MarcoGrams/Mar2005.html>

**BJB2:** and Coin Flip for Benjamin Franklin's 300th Birthday

**BJB2:** <http://sln.fi.edu/flip/index.html>

**GailH:** Sue or BJ-- talk about yours -- why you are sharing it, if you wish? or a particular?

**BJB2:** the marco polo site had a lot of good science links

**BJB2:** . o O ( and I think a couple math links too )

**TracyC:** Sounds like some probability in the Ben Franklin site?

**BJB2:** the coin flip is a probability challenge...international

**SusanR:** You may want to consider subscribing to the monthly Marcograms at Marco Polo

**TracyC:** I have another issue of Focus--very Internet focused but for little kids

**TracyC:** <http://www.enc.org/features/focus/archive/youngmath/>

**TracyC:** not so much sites to use but more about how to use the Web with this age of children

**TracyC:** it does have tons of examples...

**SusanR:** Thank you, Tracy

**GailH:** It points to <http://www.bbc.co.uk/schools/numbertime/games/> I believe which is wonderful (have sound on)

**JeffC** puts up our public bookmarks at  
<http://www.mybookmarks.com/public/mathscience>

**GailH:** One of my favorite articles is  
<http://www.enc.org/features/focus/archive/ideas58science/document.shtm?input=FOC-003731-index> (in the ENC Focus about middle school science) but applicable all over. It is about H.O.T. Grabbers where HOT means higher order thinking

**GailH:** About making those interest-generating activities at beginning of a lesson RICH!

**GailH:** For those of you who haven't had a chance, do you wish to share a site (or a need for a site?) with us?

**JeffC** also puts up his article at <http://snurl.com/netc1> for Collaborative Sites and Tools to create project based learning with your students. I especially recommend Takingitglobal at <http://www.takingitglobal.org>

**CrystalE:** this may have been shared before I arrived a few minutes ago but this site has some neat virtual manipulatives <http://matti.usu.edu/nlvm/nav/vlibrary.html>

**GailH:** Thanks Jeff.

**DavidWe:** That's a great site, Crystal

**GailH:** I agree, it is great Crystal. I particularly like the geoboards at early grade activities there.

**GailH:** Others anyone wishes to share?

**AmyST:** I have a need for a site that has Z system interactive tables if possible. (aka operational systems) any ideas??

**DavidWe** is always happy to have people know about Symmetry and Pattern in Oriental Rugs

**DavidWe** . o O ( [www.mathforum.org/geometry/rugs](http://www.mathforum.org/geometry/rugs) )

**DavidWe** doesn't know what a Z system interactive table is

**TracyC** smiles at David's site

**DavidWe:** Well, it's pretty good, Tracy

**GailH:** This is a neat activity (about taxi cabs -- and introduces the coordinate plane) -- appropriate at a number of mathematical developmental levels  
<http://www.learner.org/teacherslab/math/geometry/shape/taxicab/index.html>

**BJB2** wonders if Gail and Tracy's fingers are getting tired yet?

**GailH:** And Tracy was the lead on this professional development resources (with several hundred articles) <http://www.enc.org/professional/guide/>

**GailH:** You said it would be a roller coaster, didn't you?

**AmyST:** It's the same thing as modular arithmetic, although it's called a Z system... for example,  $(\mathbb{Z}_4, +)$  includes the numbers (0, 1, 2, 3) under the operation of addition. My students have to create tables and I was wondering if there was any interactive resources to help. It relates to group theory and crazy stuff like that

**SusanR:** Thank you, Gail and Tracy for your detailed overview of the ENC site, There is so much to explore.

**BJB2** laughs...yes, I did! Was I right?

**AmyST:** Yes Thank you so much!

**GailH:** <http://www.intel.com/education/projects/wildride/index.htm> as a parting way to leave!

**GailH:** Thanks to all of you for joining us -- and sharing so many great resources.

**JeffC:** I encourage people to join either Math or Science Resources K-20+ here if you haven't already done so.

**DavidWe** thanks Gail and Tracy

**GailH:** Thanks, David.

**GailH:** Sorry, I meant Jeff (but thanks David too.)

**DavidWe** applauds the collective work of ENC folks

**BJB2** gives a round of applause for all discussion participants

**VanL:** Thank you everyone. You all show me a lots of good sites

**SusanR:** Night all..fabulous Gail and Tracy

**BJB2** waves goodnight. Thanks, everyone.