Title of Session: Math and Technology - CLIME
Moderator: David Weksler
Guest Speaker: Ihor Charischak
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Room: MathEdTech Group

DavidW: We typically start Tapped In discussions with brief introductions - let us know what you teach/will be teaching and where you are

DavidW: Also, let us know what you are interested in with respect to math education and technology

BJB2: I'm in Pennsylvania and am a retired communication/art teacher

ShaunaK: I teach math (although not currently) and live in San Diego. I'm also doing my master's thesis on math and technology.

BJB2: cool, Shauna!

IhorC: I'm Ihor. I'm a retired math / tech educator from White Plains, NY

ShaunaK smiles

DavidW hopes Mirandah is still with us

MirandahO: I teach middle school English in Encinitas, CA-- also in San Diego. I am working on my master's as well. One class is tech. in education

ShaunaK: We may be in the same class....CSUSM?

MirandahO: Yes!

DavidW: So you are more interested in the tech, Mirandah than in the math, essentially, right?

MirandahO: Definitely, but I thought I would just check it out

DavidW: Great, thanks for joining us

IhorC: What are you learning in your course related to math and/or tech?

ShaunaK: The course is more about ed. technology research.

MirandahO: About issues related to tech. in education as well as different ways to use technology in the classroom

ShaunaK: Yes.

IhorC: Did you mention the grade level you folks are interested in?

DavidW: Ihor and I have been discussing the use of Web 2.0 technologies in math education. We hope that may interest you both

ShaunaK: Oh, yes. I teach high school.

MirandahO: I teach 7th grade

ShaunaK: I'm very interested in Web 2.0

DavidW smiles

MirandahO: What is Web 2.0?

IhorC: Web 2.0 is sometimes called the read/write web.

MirandahO: Sounds interesting

ShaunaK: Isn't blogging a web 2.0 tool?

DavidW: I think you may find a wide range of definitions, Mirandah, but essentially it is the increasing availability of shared/collaborative web sites available to anyone

IhorC: In the early days (Web 1.0) was used mostly for getting information.

MirandahO: Great, that makes sense

DavidW: Here's the Wikipedia definition (wikipedia is a Web 2.0 application):

LaraO joined the room.

DavidW: http://en.wikipedia.org/wiki/Web_2.0

DavidW: Hi, Lara. Welcome

IhorC: Now it's more interactive.

LaraO: good evening

DavidW: remember you may need to hold down the control key and click on URLs if

you have a pop-up blocker active in your browser

IhorC: For example, Tapped In is a Web 2.0 (maybe 3.0?) application.

DavidW: Lara, we've just begun the discussion - would you quickly introduce yourself?

DavidW agrees with Ihor

IhorC: It's making it easier to learn in a more personal, interactive way.

IhorC: I've been trying to do things that take advantage of web 2.0 in math teaching.

LaraO: Middle School Technology - primarily applied math and science - pre engineering, critical thinking, problem solving - certified math 5 - 9 working on 10 - 12 - Missouri

DavidW: Thanks, Lara

ShaunaK: I'd like to hear more Ihor.

DavidW: Ihor, do you want to say a few words about CLIME and your blog?

MarkG joined the room.

DavidW: Hi, Mark. Welcome

MarkG: hello

DavidW: Would you briefly introduce yourself, Mark - we've just started the discussion

IhorC: Well CLIME is an affiliate group of NCTM which is trying to make math teachers more aware of creative ways to use tech in math.

ShaunaK: Great! I want to hear more about that!

MarkG: I'm a PE & Health Teacher, masters student Ed Tech

DavidW: Thanks, Mark

IhorC: So I've been going around to conferences sharing my vision of what the read and write Web can do for teaching and learning math.

BJB2 . o O (read and write web is sometimes what Web 2.0 is called)

IhorC: I could share an example if you don't mind surfing with me.

ShaunaK: Okay.

MirandahO: Okay

MarkG: Okay

LaraO: great!

IhorC: This will take a few clicks including some directions.

IhorC: first I want to do a number puzzle with you.

DavidW . o O (and we'll help you through it)

IhorC: This first part doesn't require anything more than paper and pencil

IhorC: hopefully you have some nearby.

IhorC: also I'll need feedback when you ready for the next part. OK?

ShaunaK: ok

MirandahO: ready

MarkG: got it

IhorC: So far I got three takers. Is that right?

LaraO: 4

DavidW . o O (5)

IhorC: It's even better with 4!

IhorC: Make that 5!

IhorC: OK... are you ready to go?

DavidW: Just for clarification -we're going back to using Web -1.0 - paper and pencil

LaraO: y

IhorC: That's Web -1.0 :)

MirandahO: yes, ready to go

ShaunaK: Funny.

IhorC: OK. Here goes...

IhorC: Write down a number from 1 to 10

MarkG: got it

LaraO: k

MirandahO: ok

ShaunaK: yes

IhorC: Add 11 to that number

LaraO: k

IhorC: BTW - this puzzle is called the famous Jinx puzzle

MarkG: k

ShaunaK: k

DavidW . o O (famous to some)

IhorC: Now multiply by 6

ShaunaK: k

LaraO: k

MarkG: k

IhorC: Subtract 3

MarkG: k

DavidW nods

ShaunaK: k

IhorC: divide by 3

MarkG: k

MirandahO: ok

ShaunaK: k

IhorC: I hope you didn't get a remainder

LaraO: k

ShaunaK: no

MirandahO: no

MarkG: no

LaraO: nope

IhorC: NEXT step: Add 5

ShaunaK: k

MarkG: k

LaraO: k

IhorC: divide by 2

ShaunaK: k

MirandahO: ok

DavidW . o O (just came in the middle of a math puzzle, Susannah - we'll catch you up)

MarkG: k

LaraO: k

IhorC: LAST step coming up..... Drum roll please....

DavidW rolls his drum

IhorC: Subtract the number you started with..

IhorC: Now tell me what you got.

MirandahO: 13

ShaunaK: 13

DavidW . o O (13)

LaraO: 13

MarkG: 13

IhorC: 13????????

IhorC: That must mean you all started with the same number. Right?

DavidW: I started with 6

ShaunaK: 5

MirandahO: 8

LaraO: 4

MarkG: started with 3

DavidW applauds the group for choosing different numbers

ShaunaK: What are the chances of that?

DavidW: So, Ihor, how did we all end up with 13?

IhorC: Whoa, do you think it will work with other numbers?

ShaunaK: Oh, different problem.

LaraO: meaning? greater than 10 or less than 0?

IhorC: YES!

ShaunaK: Does it work???

MirandahO: same steps?

IhorC: or any number?

IhorC: How can we find out if it will always work?

LaraO: no because then you will have a greater chance of remainders

ShaunaK: math induction??

IhorC: wow - great conjecture!

IhorC: When I do this with kids I have them do it again with different numbers....

ShaunaK: Much easier.

ShaunaK: Shall we try it again?

IhorC: But since we are all adults and we don't want to go through the steps again

ShaunaK: Oh, okay.

MarkG: okay

IhorC: Why don't I share with you a calculator that will help you to do the jinx puzzle?

MirandahO: sounds better!

ShaunaK: Oh, nice!

MarkG: great

IhorC: OK this is where we do a little guided surfing.....

LaraO: I just tried it with -3 and it still came to 13

IhorC: So you think it always works?

ShaunaK: I think it will.

LaraO: doubting my hypothesis

MirandahO: yes

IhorC: Do you think we can find a number where it would not work?

MirandahO: are you talking whole numbers?

DavidW . o O (fraction or decimal?)

ShaunaK: I tried 0 and that works, too.

IhorC: Any number!

LaraO: k - 12 works also so really doubting now

ShaunaK: I want to see the calculator.

IhorC: Let's go to the calculator!

IhorC: First well go to the CLIME website.

MarkG: ok

IhorC: http://clime.org

ShaunaK: I hope I don't get lost!

DavidW . o O (let us know if you don't get a new web window opening)

MarkG: hold on mine won't work

LaraO: k - decimals work

ShaunaK: okay. I'm there.

DavidW: try holding the CONTROL key when you click, Mark

MirandahO: me too

MirandahO: I'm there

LaraO: k I'm there too

MarkG: k

IhorC: good ... that's my picture there - 25 years ago. :-)

IhorC: Click on the microworlds 2.0 link at the top

MirandahO smiles

MarkG: got it

ShaunaK: Okay, I'm there, too.

IhorC: Now click on the graphic of me and the kids

MirandahO: ok

MarkG: k

IhorC: now click on downloads at the top

MarkG: k

ShaunaK: k

MirandahO: ok

IhorC: Now (I'm crossing my fingers) click on Google spreadsheet next to the famous jinx puzzle

IhorC: Tell me what you get...

ShaunaK: It's a google docs and spreadsheets site.

LaraO: google asking to log in

IhorC: yes, but do you see the puzzle

LaraO: no

MirandahO: with the bag and marbles?

ShaunaK: no

IhorC: This is the website

IhorC: http://spreadsheets.google.com/ccc?key=pUglwXqBtKmkpT2NKvMQSfQ&hl=en

MarkG: I'm not getting it

DavidW: I'm also getting asked to login

DavidW: I thought we had made this public at one point

ShaunaK: I tried clicking on your link and it takes me back to the google site.

IhorC: Yes, I was hoping it would work.

IhorC: Try this:

LaraO: I signed in to my google and it is saying that I don't have permission to access

LaraO: you have to request access

DavidW . o O (me too, actually)

MarkG: I'm not getting it either

IhorC: Oh I forgot about that.

DavidW smiles

DavidW: There's a good web page with the spreadsheet example of the Jinx puzzle embedded in it

IhorC: how many of you have excel on your computers?

MirandahO: I do

MarkG: I do

ShaunaK: I do.

LaraO: y

IhorC: Great.

IhorC: I have an alternative

IhorC: Go back here:

IhorC: http://web.mac.com/ihor12/Adventures/Downloads.html

MirandahO: I am trying to click and hold down the URL, but it is not working for some reason. Any suggestions?

DavidW: you may have to find that window, Mirandah - check to see it's not hidden behind another open window

MarkG: I had to open another window

DavidW . o O (if you have more than one web window open)

ShaunaK: I'm there.

MarkG: yes

LaraO: me too

IhorC: If you scroll to where it says jinx calculator you will see a link there

MirandahO: I just typed it in

DavidW: Good, Mirandah

IhorC: Click on the word click..... or go directly to this

IhorC: http://web.mac.com/ihor12/home/jinxpuzzle/jinx.xls

IhorC: It will download the excel file for you.

MirandahO: got it!

DavidW . o O (or click the link - jinx.xls)

ShaunaK: got it.

IhorC: That's what I meant

MarkG: got it

IhorC: Open the excel file....

ShaunaK: Very Cool!!

IhorC: do you see the steps for the puzzle?

MarkG: mine is loading

MirandahO: yes

LaraO: y

IhorC: Now enter in a number (any number) in cell B1 (where it says 6)

MarkG: cool

LaraO: very cool

MirandahO: uh-oh, my cell B1 says 3.14

LaraO: this would so frustrate my kids   :-)

DavidW smiles

IhorC: That's ok.... just change 3.14 to any whole number.

LaraO: I know it's rotten - but I love doing that

MirandahO: ok

MirandahO: Great, thanks!

MarkG: thank you

IhorC: The goal is to see if we can come up with a number that doesn't make 13

ShaunaK: I tried many numbers and they all worked.

IhorC: It turns out that decimals fractions negative will all work?

MirandahO: me too!

IhorC: Does that mean we have proved it that it will always work?

MarkG: mine all worked

MirandahO: yes

LaraO: I tried a negative decimal and it worked

ShaunaK: I guess irrational numbers wouldn't work, though, right?

IhorC: Yes, that's right. Buy why wouldn't they work?

ShaunaK: Because the calculator only takes decimals.

ShaunaK: We'd need to round.

DavidW: how does Excel deal with an irrational number?

IhorC: 3.14159 works

BJB2 . o O (puts it in a straight jacket?)

IhorC: It can't!!!!!!!!!

ShaunaK: Ha!

DavidW: BJ is more or less right

IhorC: The problem is that we can't enter an irrational number only an approximation!!!!

ShaunaK: Right!

BJB2 gives the irrational number time out until it can behave rationally

DavidW smiles

ShaunaK laughs

MarkG: lol

DavidW: BJ has LOTS of experience with irrational numbers

IhorC: So what do we have to use instead? Something that could represent any number!

ShaunaK: a variable??

IhorC: YESSSSSSSSSSS.........

ShaunaK: letters don't work.

IhorC: That's where we need to use algebra.

LaraO: so neither would a function

ShaunaK: Okay. We can't use the spreadsheet here.

IhorC: Right we can't use the spreadsheet to prove it.

IhorC: so we do something that you will find on this page:

IhorC: http://web.mac.com/ihor12/home/jinxpuzzle

IhorC: scroll to the bottom of the page and watch the flash demo!

IhorC: the bag (or X) represents any number

ShaunaK: That's pretty neat!

ShaunaK: I love the graphics!

IhorC: It was written by a colleague when is was working at CIESE at Stevens Tech in Hoboken, NJ

MirandahO: Great visual!

MarkG: cool, I like it

LaraO: thanks for including the algebra feature!!

ShaunaK: The algebraic version is cool too

MirandahO: Thank you for providing this topic!

IhorC: It's a great way to get kids to see the value of the variable

IhorC: in proving things.

DavidW reminds everyone that web pages we have discussed will be in your transcript - you'll find it in your email after you logout

BJB2: great discussion. Thanks, Ihor!

MarkG: thank you

ShaunaK: Yes, thank you.

LaraO: super thank you!

MirandahO: great, thanks!

DavidW: Thanks for joining us for the discussion

BJB2 wonders if Mark will switch to math instead of phys ed now?

ShaunaK: Will you be doing another one soon? (I hope)

MarkG: lol

IhorC: You guys were great thanks for playing!

DavidW: There are several other Web 2.0 discussions on the Tapped In calendar - not necessarily math related

BJB2: Next Math and Tech will be October 21

DavidW: Good job, Ihor - we'll have to check on the Google spreadsheet settings

ShaunaK: Great. I'll mark my calendar.

DavidW: Any other questions, folks?

ShaunaK: No. Thanks, David and Ihor.