

Title of Session: Problem Based Curriculum - Math

Moderator: David Weksler

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Room: Problem Based Curriculum Group

BjB: Welcome to this month's attempt at the PBC discussion...

BjB: we usually start all discussions with introductions...

BjB: please tell me where you are located and what you teach or hope to teach

BjB: I teach communication in Pennsylvania and am on Tapped in helpdesk

MariekeJ: I am in Solana Beach, north county San Diego, and teach a 2/3 mult-age.

AngelaHoo: I am in Spotsylvania, VA and teach high school math

CharlieS: I teach 8th grade math near Fredericksburg, VA

AngelaHoo: Charlie and I teach in the same division

BjB: wow..so we span elementary, middle and high school levels!

BjB: David is going to join us...he has a lot of great information for math teachers

AngelaHoo: Great!!!!

DavidWe joined the room.

BjB: David, we have teachers from elementary, middle and high school levels here today

DavidWe: I'm David Weksler. I'm a HelpDesk volunteer along with Bj. I also lead a math education and technology discussion (it will meet tomorrow at 7:30pm EDT). I'm in New Jersey, near New York City

DavidWe is excited to see K-12 teachers

DavidWe: I rarely see K-12 teachers

TracieDR: My name is Tracie Reed. I am from Eunice, LA. I teach second grade at Eunice Elementary.

DavidWe: Where is Eunice, LA, Tracie?

TracieDR: I live about three hours away from New Orleans, Louisiana.

DavidWe wonders if Bj is subtly hinting that he might talk about math stuff

BjB: I'm not being subtle at all, David! The topic scheduled is PBC and MATH :-)

DavidWe smiles

DavidWe noticed earlier in the day

DavidWe: I COULD have gone out for ice cream, but, NO...I'm sitting here

BjB is VERY grateful

BjB hands David an IOU for ice cream

DavidWe: So, Chris Aguirre, who teaches in New York State is usually the discussion leader for Problem-Based Curriculum

DavidWe: He apparently HAS stepped out to get some Rocky Road (or something similar)...

DavidWe: So, folks - do you know about the Math Forum - www.mathforum.org - big web site for math education?

CarolGi: like it

CharlieS: very cool site

MariekeJ: I will have to check it out

DavidWe: I was part of the team of people who started that web site in 1992

DavidWe: We had to teach teachers how to send email - early days of Internet technology

TracieDR: I never really used it before. I will check it out later since you guys are really giving it cool reviews.

DavidWe: So, may I ask you to tell me a bit about what attracted you to this particular discussion?

DavidWe: Hey, Tracie. It's way cool!

CarolGi: had the word Math in the title

DavidWe: Are you more interested in the math topic or in problem-based curriculum or ...?

TracieDR: I would like to learn more about Math

DavidWe: Thanks, Carol

DavidWe nods to Tracie

ShelleyGst1: I am a trainer and a grad student at UDEL - Ed Tech just browsing

DavidWe: So, just to keep you in the loop...

AngelaHoo: I'm a department chair at my school so I try to find things for my teachers to look at.

DavidWe: That's fine, Shelley. Consider joining Tapped In as a member - it's FREE

CarolGi: a math discussion.....about anything is pretty cool

DavidWe: ...I lead a math education + technology discussion which will take place next TOMORROW at 7:30pm EDT

AngelaHoo: I would like to learn more about problem-based learning

MariekeJ: I wanted more insight in teaching math using tech

DavidWe: I just got back from the NECC conference (big ed. tech. conference) in Atlanta 3 weeks ago

CharlieS: I love teaching math and am always looking for new ways to engage students in learning math

DavidWe: So, have you guys seen the National Library of Virtual Manipulatives?

DavidWe: Very cool applets (java-based applets) illustrating a wide variety of math topics

DavidWe: It's organized by grade-levels and by topics

AngelaHoo: That is a WONDERFUL site. I use it often when I have 2-3 minutes or so at the end of class.

MariekeJ: cool

TracieDR: No, I never heard of it. I will have check it out.

DavidWe: I'm going to give you a web site that you can click on...

MariekeJ: great

DavidWe: Here's the web site:

DavidWe: <http://enlvm.usu.edu/ma/nav/doc/intro.jsp>

DavidWe: They have just redesigned the web site

DavidWe: Welcome back, Carol

DavidWe: Are you using a Windows computer with Internet Explorer?

DavidWe: Here is the grade-level, topic grid web page:

CarolGi: yeah - and it doesn't like to let me chat.....

DavidWe: Hold down the control key and click

DavidWe . o O (I can help you with allowing pop-ups later)

DavidWe: http://enlvm.usu.edu/ma/nav/bb_dlib.jsp

DavidWe: There are 5 topic strands: Number and Operations, Algebra, Geometry, Measurement, Data Analysis...

AngelaHoo: That site is great! I can't wait to use it this coming school year and show it to my department.

CarolGi: http://enlvm.usu.edu/ma/nav/bb_dlib.jsp

DavidWe: And, 4 grade level segments: K-2, 3-5, 6-8, 9-12

MariekeJ: I look forward to exploring it

CarolGi: I will check it out later.

DavidWe: Do you all know about the transcript that Tapped In will send you as a Tapped In member?

DavidWe nods to Carol

MariekeJ: yes

DavidWe: I've not seen the re-vamped web site

CarolGi: Yes, I have gotten transcripts in the past

DavidWe: I'm looking at the page, now, that shows Teacher Published Lessons - this looks pretty cool:

DavidWe: http://enlvm.usu.edu/ma/nav/bb_school.jsp?sid=all&coid=all

TracieDR: I like this web site. This is something that I will definitely use.

CharlieS: This really is a great site!

DavidWe: Who teaches middle/high school?

CarolGi: Middle School 8th grade

CharlieS: I teach 8th grade: regular math, algebra and geometry

DavidWe: Are you folks aware of the Math Forum's problems of the week?

DavidWe . o O (POWs)

AngelaHoo: I also teach high school

DavidWe nods to Angela

DeniseMD: I teach elementary...I've taught 2, 3, 4th and love the little ones...maybe middle school later

BjB thinks the elementary teachers might want to check out the K-3+ Resource group

DavidWe: There are middle school and high school problems of the week - sophisticated problems which require students to communicate their math knowledge

DeniseMD: my kids loved the POW...they were such great problem solvers.

AngelaHoo: I teach Algebra I, Pre-Calculus, and AP Statistics

DavidWe: There is a small subscription fee for participating in the POWs, but students also benefit from online mentors

DavidWe: http://mathforum.org/problems_puzzles_landing.html

DavidWe: There are POWs for Math Fundamentals, Pre-Algebra, Algebra, Geometry

CharlieS: I've looked at those POWs but some are VERY hard and challenging....but it is good for them

TracieDR: The POW is only for middle and high school students

MariekeJ: All these great sites-I'm excited!

DavidWe: You can start a trial account, too, to see what they are like

DavidWe: So, Marieke, let me pick on you, if you don't mind

MariekeJ: oh no

DavidWe: I'm glad that you are learning about some new web sites, but...

DavidWe: where do you go, as a teacher, to learn more about educational materials? Do you talk with your colleagues in school? Do you get to go to conferences?

DavidWe knows some good folks who are members of the California Math Council

MariekeJ: Colleagues mostly-conferences are not offered as frequently as they used to be

CharlieS: I like networking at division meetings and other conferences...

DavidWe: Do you Californians know about the California Math Council?

AngelaHoo: Marieke...Could you pay your own way to conferences?

CarolGi: It is important to talk to other math teachers

DavidWe: <http://www.cmc-math.org/>

CharlieS: ...but now I've been introduced to many useful sites out there like this one through a class that I'm taking (for my masters in secondary math education)

AngelaHoo: I often will pay to attend. I learn a lot of great things and it gives me a break from the day to day stuff.

DeniseMD: we are all teaching a mind at a different level of ability..this should be universal and apply to all levels. :]

MariekeJ: When I get some money-I'm trying to find some-maybe hanging from some trees somewhere

DavidWe: My point for asking Marieke these questions is that Tapped In is ONE place where these types of interactions take place - ON A REGULAR BASIS and AT LOW COST

DeniseMD: love this place already

DavidWe: It's still more fun to go to a conference (I was in Atlanta for 5 days with 13,000 ed. tech folks), but I can't always spend 5 days in Atlanta

MariekeJ: It's great to really think about where I can go to improve my skills

DeniseMD: oh, halleluia!! sp?

TracieDR: I love this place too. I think that it is a great place to chat with other educators.

DeniseMD: yeah, to exchange...lots

DavidWe: That's the idea, Tracie - Tapped In is very much a "community of practice" people learning from colleagues around the world, across the US

DeniseMD: yeah, I'll do that...as soon as I feel comfy enough to venture

JeffC: I saw a good thing on math today.

DavidWe listens and lets his fingers rest

DavidWe: Jeff is going to share something with us

JeffC: from Laura Candler: <http://home.att.net/~teaching/teacheroncall.htm>

DavidWe: What is there, Jeff?

DeniseMD: yeah, what is on the site?

JeffC: well... I can copy/paste what she says about what's in her Math files.

JeffC: One is called Giant's Ruler and it's a pattern you can use to help your students understand all the little markings on a customary ruler.

JeffC: It's basically a single inch, enlarged to be 11 inches long, the length of a sheet of paper. You can use it to teach your students a fraction lesson

JeffC: to help them understand why we use terms like $\frac{1}{4}$ inch, $\frac{1}{2}$ inch, and so on

JeffC: even though the inch is divided into 16ths.

JeffC: Another math file I added is a recipe for making Ice Cream in a Bag

JeffC: using metric measurements. It's a great way to wrap up a measurement unit.

JeffC: The last blackline master is difficult to describe. It's kind of a combination number line and foldable that shows the relationships between fractions, decimals, percents, and money. I've found it really helpful in teaching kids to visualize why $\frac{1}{2}$ is the same as 50%, which can also be

JeffC: compared to 50 cents or $\frac{1}{2}$ dollar. It constantly amazes me how 5th graders lack the flexibility of thinking to help them see those basic relationships.

JeffC: I'll bet that some middle school students have the same problems, and 3rd and 4th grade kids probably have trouble just connecting fractions, decimals, and money. I hope this helps!

MariekeJ: trying to catch up

CarolGi: how do you make the "black type comments"

DeniseMD: umm, no way...i don't know how to let go of this safe spot...

MariekeJ: oh- yes

DavidWe: what do you mean, Carol?

CarolGi: yes - detach works

DavidWe waves

DavidWe: that?

AngelaHoo: Carol...you type a colon and then whatever

DeniseMD: Carol, that's what I wanted to know the other night and never got the answer...hmmm? men??? care to teach??

DavidWe . o O (:waves == DavidWe waves)

CarolGi ok

CarolGi: got it

DavidWe smiles

DavidWe: to see the short list of typed commands, type /help

DeniseMD smiles

CarolGi: you use this when?

DeniseMD: ohhh, I did it!!! thanks Angela :) you're an angel.

DavidWe: So, has anyone tried to do any problem-based/inter-disciplinary math units?

MariekeJ: not yet

TracieDR no

DavidWe: I'm not sure what you are asking, Carol

DavidWe: Let me show you a project about art and math

DavidWe: This collaboration was between the Math Forum and the Textile Museum in Washington, D.C.

DeniseMD: well, I may have not received an explanation of that? you mean wrap up math into other academia and work out problems, etc.?? like in our trip around the world unit with 2nd graders?

DavidWe . o O (over 10 years ago, actually...)

AngelaHoo: I have a little bit last year as I was trying some new things while going for my National Board Certification

CarolGi: when do you respond with the colon or not?

DavidWe: It's up to you, Carol

DavidWe nods

CarolGi: summer time - haven't given much thought to PB learning for fall

DavidWe: Sometimes it seems better to give an EMOTE (non-verbal) comment

DavidWe: Anyway, let me share with you this project - it may apply to people teaching different-aged students

DeniseMD got it

DavidWe: <http://mathforum.org/geometry/rugs/>

CarolGi: I am working on a Excel/Database unit on recipes/ingredients and shopping

CharlieS: good idea Carol!

DeniseMD: wrote it down...

CarolGi: opened a new window to view websites.

DavidWe: so, the goal would be to have students understand patterns and symmetry, perhaps look carefully at how they are used with rugs from the web site or other places

DavidWe: Excellent projects for math and food

DavidWe: Do most of you know about the Dutch artist M. C. Escher?

MariekeJ: no

CharlieS: Yes, I love showing Escher prints to my students!

TracieDR: I don't know

DavidWe: <http://www.mcescher.com/Gallery/gallery-symmetry.htm>

DeniseMD: yes, with pictures, faces, animals, living creatures...I love doing symmetry and the kids respond with "it means it's the exact same on both sides" :]

CarolGi: always discuss him for tessellations

DavidWe: So, first thing I should tell you is that I actually met him in Holland, at his house, when I was 9

TracieDR: Thanks for all of these great web sites!

DavidWe: We lived in London one year, we were in Holland and my Dad called him on the phone and we were invited over

JeffC wonders if Escher used David as the model for the "Reptiles" pic.

CharlieS: I really like the site with symmetry and patterns with the rugs! I already have an idea for a project now!

DavidWe: You're welcome, Tracie

DavidWe: That's great, Charlie

CarolGi: keeping this one for my ABC tessellation books

DavidWe: I think the reptiles may precede my arrival, Jeff

DavidWe isn't sure

DeniseMD: love the Dutch...DeGraffenreid is my last name

DavidWe smiles

MariekeJ: Dutch are wonderful-I'm Dutch

DavidWe: Anyway, the interesting story is that Escher came from a very mathematical family - many of his family were civil engineers

DavidWe: As a kid in school he was NOT good at math

DavidWe: Later on, as a young man, traveling in Europe, he saw the patterns and symmetry of mosaic tiles on Islamic buildings (the Alhambra) and was so turned on, that led him to really exploring ways of creating tessellations

DeniseMD: yeah, follow you passion and be great at it...my motto

CharlieS: That's a great hook to tell students that Escher wasn't good at math but he still could show mathematical talents in a VERY COOL way!

DavidWe: He actually did serious work in geometry as a way of understanding how to divide up the plane - a non-trivial geometry problem...but in school, it just didn't make sense to him

DeniseMD: destiny how things all line up for you in life, isn't it?

DavidWe: Same as Einstein, actually

DavidWe smiles

DavidWe: well, different routes to understanding...some of us are more visually-oriented

DeniseMD: what a brilliant man! so against the grain and just plain brilliant!

DavidWe: I was good at doing arithmetic in my head - that meant a lot for answering questions in 5th grade...I'm not sure it is really a valuable skill, though

DavidWe: the trick is to allow for multiple intelligences, different ways of seeing, different approaches to teaching a concept

DavidWe: Thus, problem-based curriculum...

DeniseMD: yes, it was because you showed the class another way of solving the problem :}

DeniseMD: yes...didn't even have time to read yours...

DavidWe: It may allow some students to get interested in a problem by first writing about it, or by first drawing a picture about it, or by doing some aspect that addresses the problem

CharlieS: and hopefully that will make students start to think of new problem solving skills

DeniseMD: that's what teaching math is all about...how many ways can one answer be attacked...yes!!

DavidWe: The goal is to understand the problem - not just break it down into math/science/language arts/social studies, etc.

DavidWe: each aspect of solving the problem can be important - different students can make use of their respective talents

DeniseMD: the kids loved to share "HOW" they got there and sometimes we would have 5 different avenues and they learned more about that than just their own way of thinking...the real beauty of math.

DavidWe: and, hopefully, learn how to develop an interest in the things they are less good at

JeffC: Here's a fun one on YouTube for multiplication (probably can't view it from school though): <http://youtube.com/watch?v=owMjAbkU1eE>

DavidWe smiles

DeniseMD: I wrote it down and will go later

DavidWe: It will be in your transcript, too, Denise

DavidWe . o O (saves on writing things down)

DavidWe: So, we have a few minutes left - any other questions or things we can try to answer?

MariekeJ: no questions.

DeniseMD: ahhhh, you are so great...that took a few seconds

DavidWe: This is a great discussion (especially when Chris logs in to lead it)

CharlieS: no thanks for all the cool website and good ideas!

DavidWe: You may be interested in knowing about the Tapped In festival

DeniseMD: no questions...I loved this session...I wasn't confused at all. I love to teach math and it was perfect

MariekeJ: Thank you David for leading us along

DavidWe: Next Wednesday, 25 July, we have a day long series of presentations that begins at 8am PDT/11am EDT

CarolGi: thanks

TracieDR: No, Thanks! I really enjoyed the discussion. Thanks again for the web sites.

DavidWe: You're welcome folks

CharlieS: cool

DavidWe: Some really good things will happen during the TI Festival

BjB agrees

DavidWe: Thanks for logging in, folks. Sorry we had to wing it a bit...

CarolGi: You get an A+ for winging it...

CharlieS: it turned out great!

DavidWe: ooh, an A+

DavidWe blushes

MariekeJ: Super job-goodbye

BjB : Festival page: <http://tappedin.org/tappedin/web/festival/>

DavidWe: Thanks

DavidWe: Good night

TracieDR: Goodbye! Thanks

AngelaHoo: Thanks for the discussion.

BjB: Festival Wiki page: <http://snipurl.com/TIFestivalWiki>

DavidWe waves

DeniseMD: goodnight

BjB: Thanks, David and Jeff

DavidWe: Thanks for joining us, Angela, Denise

AngelaHoo waves good night