

Title of Session: Problem Based Curriculum

Moderator: Chris Aguirre

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Room: Problem Based Curriculum Group

BJB2: Welcome to tonight's Problem Based Curriculum discussion!

BJB2: I would like to get started by saying hello to everyone and welcoming all of you to the problem based curriculum group

BJB2: Chris, would you like to start with introductions?

BJB2: please tell Chris where you are located and what you teach or hope to teach.

EricDM: My name is Eric Mugg and I teach at Paul Ecke in Encinitas CA. I teach 5/6grade math.

BJB2: I'm a communications teacher in Pennsylvania

BJB2: I currently work in the South Bronx as a High School administrator

DavidWe: I'm one of the HelpDesk volunteers and I lead a math education and technology discussion (tomorrow evening, in fact). I'm in New Jersey, near New York City

StephaniW: My name is Stephanie and I teach 6th grade in Fallbrook, CA

LisaK: I'm a middle school math's teacher in Australia

KevinGst9: grade 6 math teacher

JeanineMH: My name is Jeanie, and I teach third grade in San Marcos, CA

CindiS: Cindi-physics & chem is Carlsbad CA

JenniferSL: I'm a 3/4 teacher in San Marcos CA

EricDM: It sounds like I am one of the West coast people, now I see some more from CSUSM

BJB2: Is anyone using a problem based curriculum currently?

JeanineMH: no

StephaniW: no

JenniferSL: no

BJB2: Chris, can you give us a brief description of PBC?

CindiS: no

KevinGst9: no, explain?

BJB2: . o O (it's been a while since you've led a discussion!)

LisaK: am experiencing it myself in uni degree but finding it difficult to implement into classroom

BJB2: A problem based curriculum embeds core content inside of an objective

LisaK: bound by structure of school, textbook and state curriculum

BJB2: for example last year I was the vocational director for a large school district in Alaska

BJB2: we ran a welding class that was called boat building

EricDM: I have been using PBC in my math and ss curriculum. I find that it is better to think with the end in mind and that helps you think how you want to base your instruction and how you are going to access your students.

BJB2: where we built fishing boats

BJB2: Although this example is CTE based it still was heavily reliant on Math

JenniferSL: Eric, where do you get the problems from?

KevinGst9: so integrating subjects?

BJB2: Students used the math they acquired in the building of the boat

BJB2: problems that work well seem to come best from the local situation

EricDM: I have been teaching with one math question a day and the students have to come up with the formulas themselves. I end the instruction by helping them put their thoughts into formulas that work for the questions posed.

BJB2: this past summer the summer bridge program at the school I currently work in

BJB2: used the Spanish they had been studying to conduct door to door surveys of a four block area

EricDM: I have to make the problems up myself. I would happy to share the problems with you Jennifer if you send me an email at emuug@eusd.net

KevinGst9: sounds similar to investigative math, skills not exactly taught but students come up with solutions?

BJB2: Students used both written ad oral skills and found that the demographics of the area were undergoing a fundamental shift.

StephaniW: Eric, I would like to e-mail you too since I am teaching 6th grade math this year.

JenniferSL: thanks

BJB2: Sounds like Eric has some interesting information to add to the discussion. Let's listen to what Chris is saying and then Eric can tell us more.

BJB2: I am believe the best place to find problems that drive curriculum right around you

EricDM: I have found it very interesting and the students have found it very challenging. My GATE students are challenged and the Special Ed. also find it at their level because they can bring in their own experiences

BJB2: these problems seem to be very relevant to students lives and connect the core content being used in the curriculum in powerful ways

BJB2: Chris, would that suggest that the students should be encouraged to come up with the problems they want to solve?

JeanineMH: Chris, you take problems right from the community?

EricDM: Does anybody know how to show a website because I would gladly share the problems that I used today?

BJB2: Ya that's a great point BJB

BJB2: Eric, please wait for Chris to finish.

BJB2: educational research shows that giving students a voice in what they are studying

CindiS: I think that you can guide students to solve problems they are interested in and are relevant to standards!

BJB2: then we can share urls

BJB2: creates a number of positive results

BJB2 nods to Chris. Kids will work harder if the end result effects them personally

BJB2: That's a great point Cindi

KevinGst9: how do you find the time within a curriculum that has a strict timeline due to the state test in march?

EricDM: I like how your students can see that there is a way to succeed in math.

BJB2: grounding the questions being examined in standards ensures your always pointed in the right direction

BJB2: I would say this Kevin

BJB2: using this approach as an ongoing project helps place the core content knowledge you want to students to have in a new perspective

BJB2: a problem that allows them to use the math in meaningful ways provides relevance for the knowledge

KevinGst9: what is an example of a problem(s)?

BJB2: and shows students that what they are currently studying is powerful and useful

EricDM: That is a hook that allows students to see why they are learning the information.

KevinGst9: beginning to make sense now!

BJB2: Before I attempt an answer to your question let me ask this what math are we talking about

KevinGst9: grade 6 number operations: decimals, fractions, percents

StephaniW: currently we are studying exponents and algebraic expressions

BJB2: Ok Stephanie: exponents and algebraic expressions are used heavily in computer programming

EricDM: I have been working on percents and we just started to get into ratios

JeanineMH: I'm doing third grade multiplication!?!?!?

BJB2: decimals, fractions and percents are used to figure out demographic problems so I see a great cross curriculum tie in that subject

JenniferSL: multiplication here too!

BJB2: Stephanie I know a computer language is not everyone's thing but that are some really powerful languages that use algebra in some really great ways

KevinGst9: so do you pose a problem relating to content being studied for students to work on over time?

BJB2: and it allows students to see instant results of an algebraic equation

BJB2: I would say that is one way to go about it Kevin

StephaniW: Thanks! Could you please give me an example of how I could tie computer programming into my math class, since I am not familiar with computer language?

BJB2: Ask yourself this - where do you use the math you're studying

BJB2: then ask were do professionals use the math you are studying

BJB2: I've found when I have the answers to those two questions I usually have a direction to go in

BJB2: Ya Stephanie I think using action scripting in Flash is a great language for this

BJB2: Flash is a creative tool with a powerful language that is object oriented and uses scripts

BJB2: I have had a lot of success using this language for this purpose

BJB2: there are a ton of resources out there that help you get started with action scripts

KevinGst9: where do you find these problems? do we have to invent them?

BJB2: and action scripts are a close relative to javascripts

StephaniW: Thank you! I will have to check it out.

BJB2: Kevin I have to be honest with you

BJB2: every time I have tried to invent a problem it has come across as flat and contrived and students did not buy in

JeanineMH: A textbook I used last semester by Dr. Magdalene Lampert, "Teaching Problems and the Problems of Teaching," is a great resource for problem-based learning in math.

BJB2: when I used problems that are grounded in something real something they see a connection too something that seems meaningful to them I have been successful

JeanineMH: The text has many ways to present problems to your students.

EricDM: Chris, do you know of a place that I can check out one of these problems in action script

KevinGst9: thanks for the book title, I will have to check it out.

BJB2: I agree Jeanine textbooks are a great place to find problems to base a project on

BJB2: Eric I have a few

CindiS: If you are looking for problems- look in the science book / topic for your grade or even a few grades higher!

BJB2: to be honest with you Eric, a simple game like pong uses a ton of algebra

EricDM: Thank you

BJB2: and what is cool about using a game is that it can be modified by students to go in different directions

CindiS: many sci. books have started to add "problems" that can be modified...

BJB2: As people come up with problem based projects it would be great if they could share them in the discussion forum

BJB2: it would be nice we could start to capture people's ideas to share with others

BJB2: oh, oh! wait, I have an idea!!!!

BJB2: I know I have a few that I can share

BJB2: if you join this group....

BJB2: you can post your ideas to the discussion board

BJB2: this would provide an archive of ideas and the discussion board is like an email group

BJB2: all members of the group get the posts emailed to them

JenniferSL: great idea

StephaniW: sounds good

JeanineMH: okay!

EricDM: sounds fine

CindiS: that is a great idea- how long are they archived?

BJB2: as far as I know they're archived for as long as the group exists

BJB2: want directions on how to join the group?

BJB2: or do you all know how to join a group?

EricDM: I am not quite sure

BJB2: Eric, attach your chat window

BJB2: or look at the screen that was above the chat window before you detached

EricDM: I have attached

BJB2: do you see the welcome note in the middle of the screen above this chat window?

EricDM: yes

BJB2: go to THIS IS THE GROUP ROOM FOR PROBLEM BASED CURRICULUM

BJB2: and click on the green i

KevinGst9: If I am teaching decimals, fractions, percents for gr. 6 could someone give me some sort of idea of a problem that might be posed to students?

EricDM: Got it Thank you

BJB2: at the top of the group ID page is join this group

BJB2: Where are you at Kevin

KevinGst9: decimals

BJB2: I mean where physically are you: new York LA Whitehorse YK

BJB2: what city

KevinGst9: Bethlehem, PA

BJB2: cool

BJB2: Recently I have been placed in the world of Middle school

BJB2 smiles

DavidWe: A whole separate world, too

BJB2: and it seems to me the closer a subject is to their personal story the faster it is taken in

DavidWe: Talk about how to cut pies into suitable pieces for people who don't want to buy a whole pie, Kevin

EricDM: Kevin, I know that Bethlehem is home to some race car drivers. Is there any way that you can use some of the racing info to put into questions

BJB2: so I might look at your math subject through other subjects because that is where you find decimals, fractions and percents

BJB2: I think it is important to give students meaningful work so I might start by using small problems that centered around what is relevant to students in their current situation

BJB2: I might use money and work conversations, bring in the purchasing of stocks because you have decimals and fractions there

KevinGst9: good ideas, the Andretti's are from near by town, racing legends. so do I pose the problem to them and let them explore, do I guide them, give them a rubric to follow???

BJB2: I might move over to a cross curriculum piece that involves an analysis of the class as far as opinions: that would involve fractions

BJB2: I might move that analysis out to a wider group like the entire grade level: larger fractions and the relevance of fractions

CindiS: Our stats classes are always doing surveys and analyzing data

BJB2: I think that is great Cindi

EricDM: I also know that my 6th graders are into their ipods and you can have them look at fractions of songs and converting minutes to fractions of hours

BJB2: great idea

JeffC: What about a kid who comes up with a project about teams that covered the spread over the past year or so?

JenniferSL: Eric, that seems really engaging

DavidWe . o O (fraction of their iPod hard drive that's full/empty)

BJB2: that would be a way to ground that math subject in their daily lives

JeanineMH: how about life skills like banking and balancing a checkbook?

EricDM: I have also brought in net and gross paychecks with taxes. They can see how much money is taken from their paycheck

BJB2: no more like what percentage of the drive is available when you down load videos instead of music files

DavidWe nods

BJB2: it also gives you a chance to look a measurements differently because you can talk about size in relation to MB and GB

KevinGst9: like the ideas, although sounds like much preparation would have to go into developing a problem for students to work on over time. Or am I thinking too big??

BJB2: I think an element of a good problem is that once solved the answer as the ability to positively impact another area of their life

DavidWe: Kevin, do you know about the Math Forum - www.mathforum.org ?

JeanineMH: I like that website.

JenniferSL: Yes, I've used it too.

SusanR: Do you have any teacher tested successful lesson ideas using the problem based approach, Chris? We can use them as a springboard.

EricDM: I have thought about what I want them to learn and have divided up into many different problems that I use each day. The students then have a project that culminates all the information that they have learned.

DavidWe: The problems of the week/projects of the month are potential sources of ideas

BJB2: There is a Bethlehem digital history project online

<http://bdhp.moravian.edu/home/home.html>

BJB2: You know what Susan, that is a great question

BJB2 . o O (might have something for you, Kevin)

BJB2: I have to say at this point I have only what has worked for me

EricDM: Mathforum is great, I think it is well worth the money to join.

BJB2: and I think that I would like to contribute that research to this group

KevinGst9: no never been there, I will have to give it a try.

DavidWe: Some things you can still get for free

BJB2: so I will put that at the top of my to do list for next time and post what I find to a forum

BJB2 smiles. Like Tapped In!

EricDM: The problems of the week are great and you can even pick the category that you would like to work on

DavidWe: And it doesn't cost that much to have access to the current Problems of the Week

BJB2: I have been using problem based curriculums my entire teaching and administrative career

KevinGst9: are these problems of the week on the math forum website?

DavidWe: <http://www.mathforum.org/pow/>

DavidWe: yes

KevinGst9: thanks

DavidWe: You're welcome

DavidWe: This is an interesting site - the Illinois Mathematics and Science

DavidWe: Academy has a focus on PBL

BJB2: I will say this; at the heart of this approach is the concept of "relevance"

DavidWe: <http://www.imsa.edu/programs/pbln/>

BJB2: ask yourself: how have you approached information that you felt was important and relevant and ask yourself how have you approached information that you could not find "relevance" for?

EricDM: Chris, do you mind if I share my site to get some feedback. I would like to know if this is the type of work you are talking about. This is the daily problem which leads into the bigger concept of ratios and percentages?

BJB2: No please Eric go right ahead

KevinGst9: am I able to get a print out of this discussion being that I will need to go soon?? it was very engaging.

CindiS: another idea for elementary teachers is to look in high school physics books (especially the conceptual physics books) many of the problems posed are interesting and real life situations students encounter like falling objects- most of the equations are basic algebra- but require students to think about the situation- I have done some with my mom's 3rd grades it's been great!!

BJB2: Eric please go right head and share the site I would really like to see it

BJB2: Kevin, perhaps someone from the group can send you their transcript.

EricDM: Here are the questions I used today in class and the students had to come up with how to find the winning percentage. We did not get into the detailed "Baseball" equation but the students were able to look at the numbers and come up with how to do it on their own http://teachers.eusd.net/emugg/homework_for_mugg.htm

BJB2 . o O (if you get a free Tapped In membership you will get your own transcript)

BJB2: The next PBC discussion will be on October 16

BJB2: That is a great idea Cindi

JenniferSL: Thanks Cindi, I will!

BJB2: Hey this has been great thank you everyone for coming this evening

EricDM: Thank you Chris

BJB2: Have a great night

SusanR: I have used these math teasers with grade 6 classes with success ... in a collaborative mode .. <http://www.eduplace.com/kids/mhm/brain/gr6/index.html> ..they seemed relevant

JenniferSL: Thank you

JeanineMH: thank you

BJB2: Chris will post a reminder to the discussion board of the next meeting...right, Chris?

CindiS: Paul Hewitt is a conceptual physics author to keep in mind- you can usually get an older edition book on amazon for a few dollars (and NOTHING but colors has changed-Trust me!!)

StephaniW: Eric your questions look really good.

JenniferSL: Yeah Eric, they look great

BJB2: thanks, everyone! Excellent discussion.