TRAINING AND SUPPORT COORDINATOR

AGENDA (LINK)

1) INTRODUCTION

- I am here to support you. Link)
- My Philosophy of Education Video) Video

- **Facts**
  - 1. The U.S. education system is in need for improvement.
  - 2. Curriculum, instruction, teacher development and assessments are key components of K-12 education.

2) THE WORLD, U.S.A., MICHIGAN, DPSCD ' (REFORM IN EDUCATION)

- **U.S.A. versus Other Countries:**
  - The U.S.A. students' academic achievement still lags that of their peers in many other countries. Singapore is at the top. (link)
- Excellent Report to Read: (link)
  - "The competition that really matters. Comparing U.S., Chinese, and Indian Investments in the Next-Generation Workforce."
  - The report lists the better educational systems in China, India, Finland, Singapore, England and Germany.
  - The students in Finland get the top scores in international exams.

- Introduction:
  - "Americans have never shrunk from challenge or responsibility. We have always committed to ourselves and to our children, the next generation, to take on anything that makes us stronger. This report tells us another moment is at hand. We believe we're up to the task."
- **Michigan versus Other States**
  - Report To Read (link)
  - International Benchmarks for State Performance Standards (pages 9-13).
  - Notice the score for Michigan.
  - Which States Have World-Class Standards? (page 15).
  - It is not Michigan.

- **DPSCD compared to other districts**
  - "Nation's school report card ranks Detroit Schools as worst in the nation" (link)

? QUESTIONS ?

- Are we still a nation at risk?
- The U.S.A. is known to have some of the best universities in the world.
- So, why does the U.S.A. lack superiority within their K-12 systems compared to other countries?
- The U.S.A. spends more money on education than the other leading countries in education.

3) ?

- Why am I working in DPSCD?
- I want to make a difference.
- I followed my heart.
- "Another moment is at hand. I believe I am up to the task"
- What is your aim for DPSCD, the U.S.A, and the world?

4) WE ARE LUCKY AND IN THE GOOD HANDS OF EXPERTS IN U.S.A.

- Report To Read:
  - REPORT TO THE PRESIDENT PREPARE AND INSPIRE: K-12 EDUCATION IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH (STEM) FOR AMERICA'S FUTURE
  - Executive Office of the President President's Council of Advisors on Science and Technology (link)

5) GOALS FOR ALL OF THE NATION'S STUDENTS.

- By the end of the 12th grade, students should:
  - 1- have sufficient knowledge of science and engineering concepts,
  - 2- be able to apply the concepts to critically analyze real life issues,
  - 3- be inspired and have the enthusiasm to be lifelong learners and researchers,
  - 4- be critical thinkers for better evaluation and representation **(important for our democracy**). They suggested a link among engineering, technology, science and society and one common set of standards.

6) CURRENT PROBLEMS WITH THE STANDARDS

- Standards: typically outline the goals of learning.
- The current standards are long lists of detailed and disconnected facts.
- Our schools' science curricula tend to be "a mile wide and an inch deep."
- Michigan GLCE for Physics, Biology, and Chemistry.
- A Curriculum set forth the more specific means to be used to achieve those goals. In a given subject area, a curriculum generally consists of a scope (breadth) of content, a sequence of concepts and activities for learning, materials, tasks, discussions and representations.

7) SOLUTIONS

- **A)** Global Citizenship: International Baccalaureate (IB) (link)
  - The programme aims to develop students who have excellent breadth and depth of knowledge and students who flourish physically, intellectually, emotionally and ethically. (**Balanced**)
- **B)** Advanced Placement (AP) or honors courses:
  - allow for greater breadth or depth in the science topic. (link)
- **C)** Next Generation Science Standards (NGSS) (link)
  - Throughout grades K-12, students should have the opportunity to carry out scientific investigations and engineering design projects related to the disciplinary core ideas to prepare them for the technology-rich scientifically complex world.

8) MY INSTRUCTIONAL PRACTICES AND MSS/NGSS (I)

- **A) I am all aligned with MSS/NGSS**
  - I am a teacher, a researcher, an enthusiastic lifelong learner.
  - Over the years, I gather information, collect data, analyze, formulate possible solutions, experiment practices and publish.
  - I was trained to think this way as a scientist, but, I find myself applying this mentality on every aspect of my life.
  - In particular, whenever I see a challenging problem and I need to look for a solution.
  - I look ahead, ten years ahead.
  - That applies to education.
  - I was lucky to be in Western International High School and assigned to teach in the new dance room.
  - (50x40 feet, wooden floor, modern look).
  - It was the perfect setting for my action research on education.
  - (Thanks to principal Angel Garcia)

- **B) Classroom Setting is Ready for the Application of MSS/NGSS.**
  - "If we spend more time in school than home, why don't we make our classroom as comfortable as home".
  - I learned this one sentence from reading one book.

- My Aim:
  - Make the students think high about themselves, look far and care about their school.
  - Make them feel comfortable, welcomed and cared for.

- Video (classroom setting, last day)

- Video (setting for conferences)

- Video (my classroom at the end of the year).

- Notice:
  - Outdoor set, carpets, plants, flowers, and more.
  - No posters for science or classroom rules.

- **Do the students appreciate this?**
  - Video

- **We can do better.**
  - 15 Most Beautiful Schools From Around the World (link)

- **C) Teaching aids (Aligned with MSS/NGSS)**
  - **Technology, Technology, Technology.....and Technology.**

- Microphone
  - I want to talk to the students with a calm voice that projects.
  - I bought a wireless microphone (Yes, my money).
  - The one I am using now.

- iPads, iPhones
  - They use iPads or their iPhones. (Thanks to Mr. Najib Muthana).
  - I can control all iPads in the class through mine (Apple Classroom).

- Website
  - : nhsaab.weebly.com.
  - Having a website is a powerful tool.
  - You can post enormous amount of information and visual aids.
  - It is a very effective instructional tool.

- I post:
  1. Information about myself.
  2. daily lesson plan of what the students need to do step by step as soon as they walk into the classroom, (link)
  3. solutions to exercises,
  4. links to quizzes (link) (Power School. Thanks for Mr. Scott McMillan)
  5. links to videos,
  6. projects (link)
  7. publications (link)
  8. resources (link)

- Youtube Channel
  - (nada saabismail)
  - It is easy to post the students' projects so they can be viewed by each other.
  - (Logo: Drawn by a student).

- **Do the students appreciate this?**
  - Video

- Few Problems
- Nothing stops me from trying to do the best for my students, even money.
  - Problem 1: Technology is old and slow in my classroom.
  - Problem 2: The classroom is large and not all the students can see the white shiny board, wherever I put it.
  - Problem 3: I want my students to be exposed to the best technology.
  - Problem 4: The room is too cold in winter.

- Solutions
  - I bought from Best Buy an iPad Pro, an electronic pen, an 82 inches Samsung Smart TV, and an Apple TV. It was worth ...(receipt). (Please record the date and time).
  - I finance it over three years.
  - Yes, from my money.
  - Hoops (Violation).

- **Do the students appreciate this?**
  - Video
- Why?
  - I need to use my iPad and AirPlay on the TV using the Apple TV.
- Obstacles
  - 82 inches TV stayed in my room for a month and could not mount it because of administrative concerns.
  - I had to NO.
- Alternatively
  - I bought my 62 inches TV from home.
  - Not as good as the 82 inches.
  - IT WORKED and THE FUN BEGUN (Aligned with NGSS 😀)
- Powerful Tool
  - It is very fast.
  - I use graphs from the book and explain them using the electronic pen.
  - I show various types of HD videos:
  - Educational: Inner Life Of A Cell (Harvard), From DNA to Protein,
  - Relaxing (when they are working): View of a Beach.
  - The students enjoy watching themselves on the TV while I videotape them.
  - Skype with other teachers and classrooms.
- Heater
  - I bought two safe heaters that can run through all days and nights.

D) STUDENTS WORK IN GROUPS. (TEAM MSS/NGSS)

- Students are working and reporting in groups.
  - (link)

- Students works in groups, share information, discuss and present.
- Each group is provided with iPads, magnetic dry erase boards.
- They are asked to discuss and solve on the boards.
- They are free to move around and ask other groups.
- I can view all of their activities at once.
- Video of my classroom empty at the end of the year.
  - Video

- **Do the students appreciate this?**
  - Video

9) MY INSTRUCTIONAL PRACTICES AND MSS/NGSS (II)

- **A) Theoretical (MSS/NGSS)**
- **i)** Master using the basic and important concepts.
  1- Solve problems.
  2- Refer to the book when needed
  3- Reinforce using other easy language websites, such as Introductory Chemistry (link)
  4- Discuss and share with each other.
- We finished all of the concepts in chemistry and we were able to review in the last month (May). (Amr Notebooks)

- **ii)** Reinforce understanding of the concept using different forms of presentation and integration based on NGSS.

B) EXPERIMENTAL (MSS/NGSS)

- **i) CREATE for STEM**
- Excellent resources aligned with NGSS.
- Discipline-Based Educational Research created by MSU to be aligned with NGSS.
- Units start with driving questions.
- They provide a variety of instructional resources such as activities along with the materials needed.
- They use the interactive/simulation of the Concord Consortium.
- The site has lesson plans aligned with NGSS and uses integration of the three dimensions. (link)

- Materials include:
  - Driving questions (link)
  - Reading for the Activity (link)
  - Worksheet for the Activity (link)
  - Interactive Simulation for the Activity (link)

MY APPLICATIONS OF CREATE FOR STEAM

- My students have done all activities that were provided for us.
- Example 1: Electrolysis of Water: Video
- Example 2: Copper (II) chloride and Aluminum.
  - Set Up: Video
  - Experiment: Video
- I post all on my website for the students to use on a specific date (March 8). (link)
- Show samples of the students' work.

II) PAPER MODELS (ALIGNED WITH NGSS).

- Resource: Protein Data Bank (PDB) – Educational
  - Resources- Paper Models (link)
- I post all on my website (March 29) (link)
  - Video - tRNA
  - Video - HIV capsid
  - Publish: Video

III) INTERDISCIPLINARY PROJECTS FOR MORE IN DEPTH (NGSS):

- 2- Preventing and treating diseases.
  - All the links below are published on my website under Interdisciplinary Resources (link).

- Project 1.
  - Element in the Periodic Table/ Chemical and Engineering News (link)

- Project 2.
  - Top Pharmaceutical

1-Description of the project (link)
2- Resource: Top Pharmaceutical/ Chemical and Engineering News (link)
3- Accomplished: Interdisciplinary Chemistry Projects (link)
4- Present and Publish: Video
5- Invite teachers, staff and parents to visit and discuss. (email)
6- Collaboration of science fields: Chemistry, Physics (Pharmacokinetics), Biology, Technology and Engineer.

  - Chimera Video Tutorial by PDB (link)
  - Similar projects are 2018 Video Challenge Awards/PDB (link)
  - This projects was the title for my Master of Art thesis in 2006. (link)

- Example of more in depth
- Insulin- Project, Paper model, PDB 3D)

- **iv) Extra Credit**
  - Projects
  - Math
  - SAT preparation
  - Teach.
  - Chemical and Engineering News Journal (link)

- **v) More Advanced Practice:**
  - Nuclear Magnetic Resonance (NMR). link
  - Infrared Spectroscopy (IR). link

10) TEACHERS OF NGSS (LIFELONG LEARNERS)

- Teachers need to try to develop the capacity to use a variety of approaches in science education.

- Teachers in Finland are required to study and conduct research.
- They develop a research-based theoretical framework and preparation that equips them to teach students to be critical learners.
- They use current research-based best practices in science teaching, and continually seek out current research.

- **WE WILL HELP**

- The U.S. education system struggles.
- Professional development just reflects that problem.
- It will not be the case in DPSCD anymore.
- We will provide new curriculum materials, instructional guidance, create incentive structures.
- We will try to influence your willingness and capacity to explore and implement different instructional techniques.

- I definitely can assist you. It is my pleasure.

11) OUR SUPPORT AND ASSISTANCE

- A) I will support you in using new curriculum materials.
- B) We will make sure to create a safe environment so you feel comfortable.
- C) You can reflect on your own teaching practice.
- D) It is important that you acknowledge if you struggle in some ways.
  - No lesson is perfect.
  - Everyone can improve.
- E) It is important to consider comments from students and teachers.
- F) It is important to Interview kids to better understand their thinking.
- G) We will facilitate and Promote Networking.
- H) We will communicate together, share resources, instructional materials and assessments, as well as results.
- I) We can meet and practice or discuss a lesson.
- Videotape.
- Example: My Lesson (Video).
- Let us discuss.
- J) We can publish the results.
- K) I will provide instructional resources for science. They are listed below.

A) PHYSICS:

- **i) Gift:**
- My electronic Physics Book (NGSS):
- It is available as a whole book and a collection of individual lessons.
- A collection of physics concepts.
- The book is written with a student-friendly language that is also appropriate for English language learners.
- The lessons are clearly presented so that the students can retain the information. (link)
- A modified version for "at risk" students is also available.

- **ii) Ideas for Projects and Resources:**
- we have lots of resources and I can assist.
- PhET Interactive Simulation (link)
- Protein Data Bank (link)
- NGSS Lesson Plans. The concord consortium (link)

B) CHEMISTRY:

- **i) Gift:**
- I have a collection of chapters that will be available. (link)

- **ii) Ideas for Projects and Resources:**
- We have lots of resources and I can assist.
- Chemical and Engineering News Journal (link)
- Protein Data Bank (link)
- Food and Drug Administration (link)
- Animation: An Introduction to Chemistry by Mark Bishop (link)
- PhET Interactive Simulation (link)
- NGSS Lesson Plans. Educational Resources. The concord consortium (link)

C) BIOLOGY:

- **i) Gift:**
- I taught biochemistry at the University of Michigan in Dearborn.
- I have all the note, but they are on a floppy disk.
- 😞 Any idea?

- **ii) Ideas for Projects and Resources:**
- Protein Data Bank (link)
- Food and Drug Administration (link)
- PhET Interactive Simulation (link)
- An excellent book with its resources.
- NGSS Lesson Plans. The concord consortium (link)

12) AIM FOR THE FUTURE

- "Another moment is at hand. We believe we're up to the task."
- One day we will see this statement: " DPSCD rose to be one of the top schools in U.S.A."
- " The journey of a thousand miles begins with one step".
- Let us be a part of this journey.
- Our first step:
- Setting up the foundation for NGSS and let us explore, experiment and enjoy.
- The ship of DPSCD is sailing. Join the crew.
- Remember to be BALANCED video