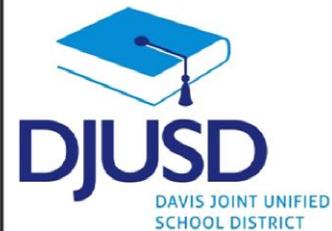


**NEXT GENERATION SCIENCE
PROFESSIONAL DEVELOPMENT**



**NEXT GENERATION
SCIENCE
STANDARDS**

PROPOSED DJUSD TIMELINE



**2014-15 Monthly PD Exploring Practices
Determination of Middle School Sequence**

2015-16

**Continue Regular Professional Growth
Development and implementation of Selected NGSS Units**

2016-17

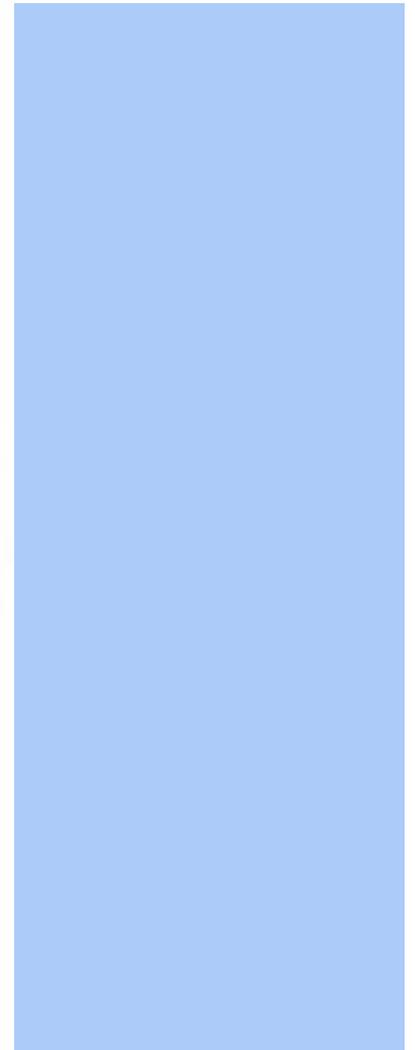
**Continued Regular Professional Growth
Development and Implementation of Selected NGSS Units**

2017-18

**Continued Regular Professional Growth
Full Implementation of NGSS
Potential Pilot of NGSS Assessments**

**Tentative NGSS Assessments
Spring 2019**

CHANGE IS HARD, AND SLOW



TRANSITIONS (OR WHAT WE'VE BEEN UP TO)



- Changing a paradigm
- Building communication strategies
 - Dialogue, reading, writing, research
- Grappling with challenges
 - perceived uncertainty,
 - ambiguity,
 - Incoherence
- Sensemaking

Science and Engineering Practices

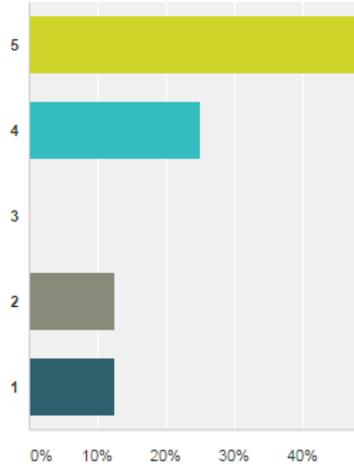
- Asking questions (for science) and defining problems (for engineering)
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations (for science) and designing solutions (for engineering)
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

EFFICACY OF THIS PD



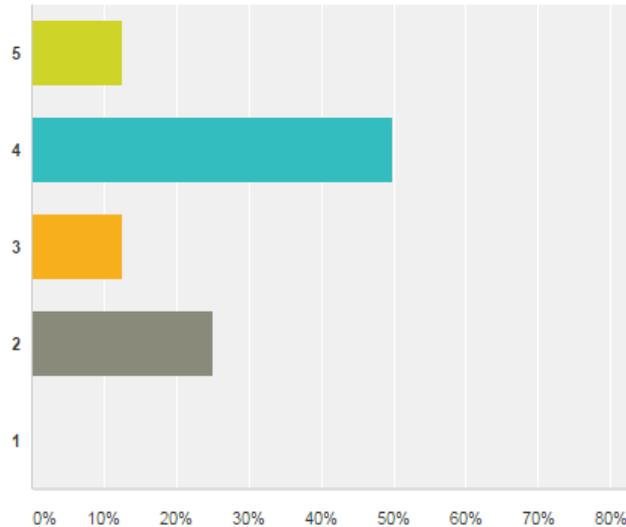
I have implemented some aspects of the practices based on my experiences in these workshops

Answered: 8 Skipped: 0



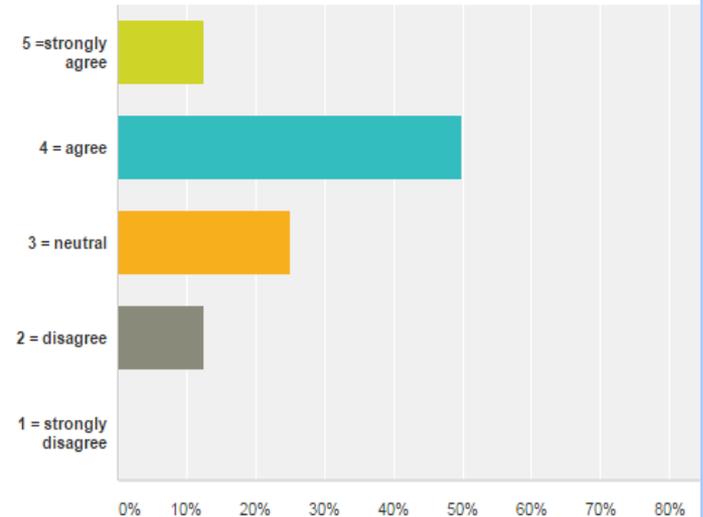
The science activities focused me on how the practices might work in my classroom

Answered: 8 Skipped: 0



I came away from workshops with a clear sense of what I might do differently in my classroom.

Answered: 8 Skipped: 0

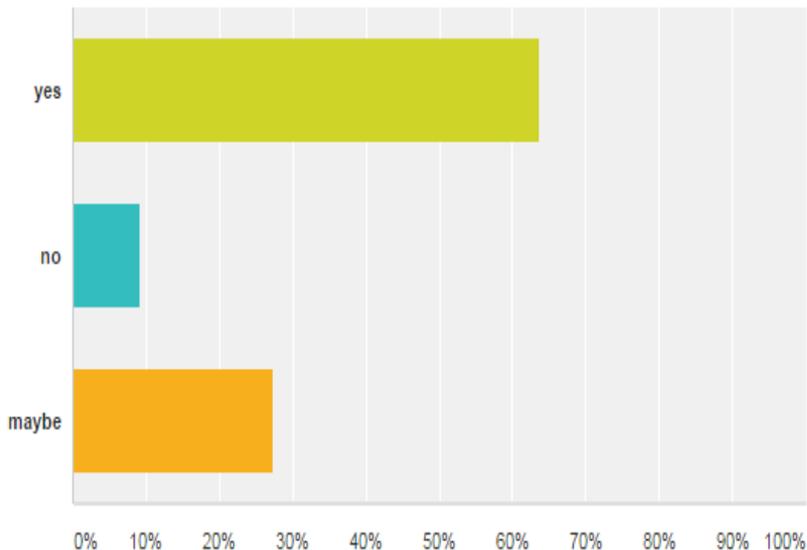


INTEREST IN ONGOING PD



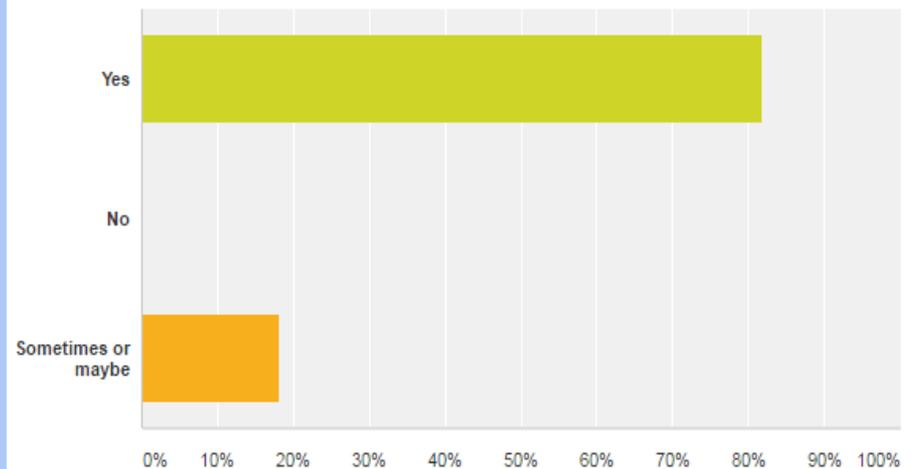
Are you interested in a 2-day NGSS summer workshop during August?

Answered: 11 Skipped: 0



Are you interested in participating in monthly PD workshops next year?

Answered: 11 Skipped: 0



SUMMARY OF CHALLENGES



While 82% indicated implementing NGSS in their classrooms, they also expressed the following challenges

- **Time to create lessons**
- **Time to identify and use data resources**
- **More examples of how to employ the practices**
- **Reconciling old and new approaches**



WHAT TEACHERS ARE SAYING



"NGSS meetings have greatly facilitated my understanding of these new standards, in their breadth, in specific performance expectations, and with regards to implementation.

~ Ken McKim, Holmes Jr. High, ISTAR Participant

"This is the best PD I've done in my whole teaching career, led BY teachers FOR teachers."
"

~ Kristi Dunbar, Cesar Chavez

ASKING QUESTIONS PHENOMENON: RADIOMETER

- why is it black and white? Can telekenisis work to make it move?
 - What causes it to move?
 - Why is it moving clockwise? - How can we speed it up?
 - Is it light or heat sensitive? How can we tell if...
 - How do we know if... outside air get into the glass chamber?
 What is the effect of... colors other than black & white? Could it have more paddles?
 - How can we make... it go the other direction?
 - Will it rotate if upside down?
 - Why is it spinning clockwise?
 Why don't we use these to collect wind turbines?
 - Will any light source work?

How does different light sources affect the rate of speed of the radiometer?

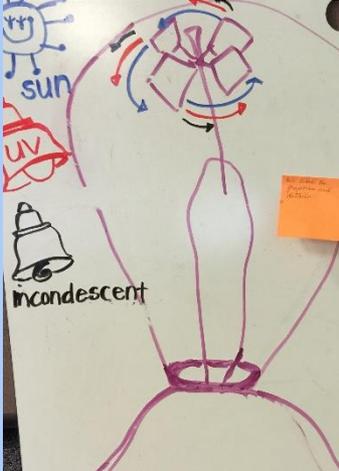
1. Test radiometer:
 1. sunlight
 2. infrared light
 3. incandescent

2. Graph Results

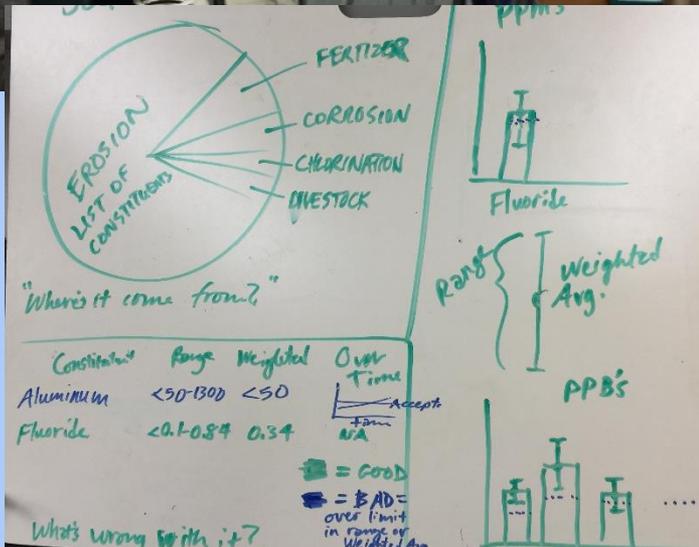
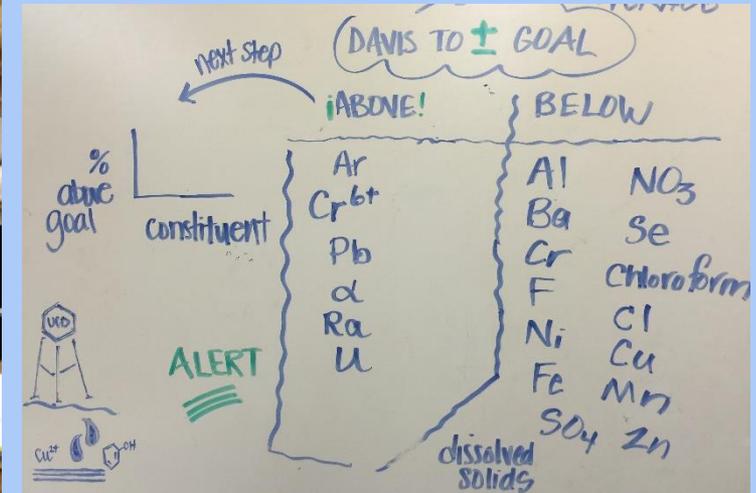
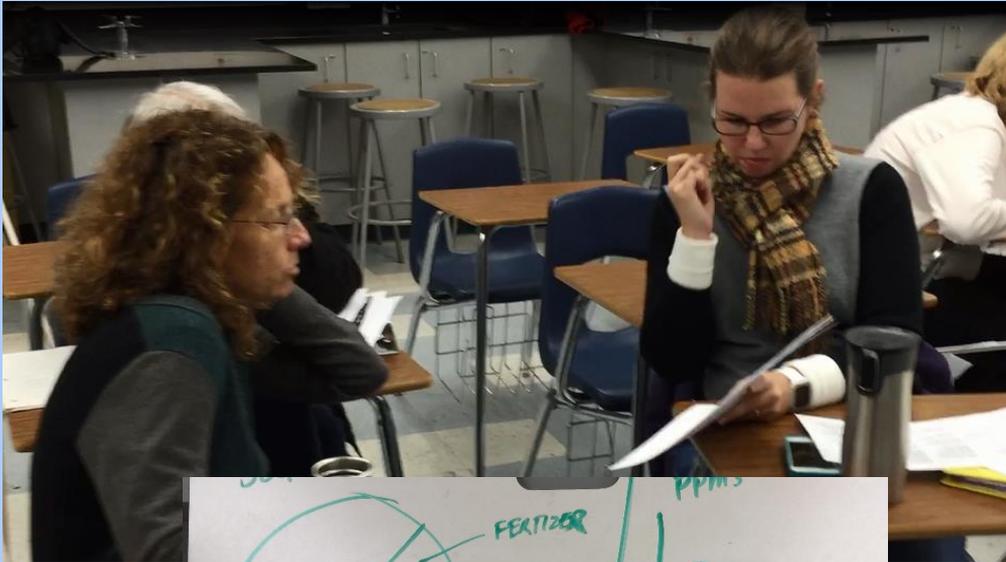
Fast Movement	☺
Med. movement	☺
Slow movement	☹

Sunlight UV Incandescent

incandescent




ANALYZING AND INTERPRETING DATA: DAVIS WATER



4TH GRADE

This is Kinetic Energy Made The Marble Go Fast.

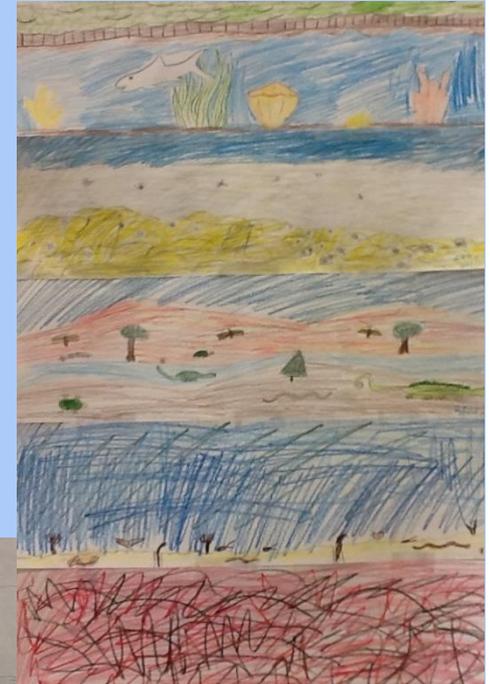
When held the Marble it had No Energy But when we let go of the Marble it had Kinetic Energy.

2 MPH
60 milliseconds

NICK Isaac
Marble's Kinetic Energy
60
Kinetic Energy

2 1/2 s
13 x 2 = 26
13 x 3 = 39
5 seconds

What Happened?



When we put the angle steeper the marble on the bottom went farther than when the angle was not as steep the marble went not as far.

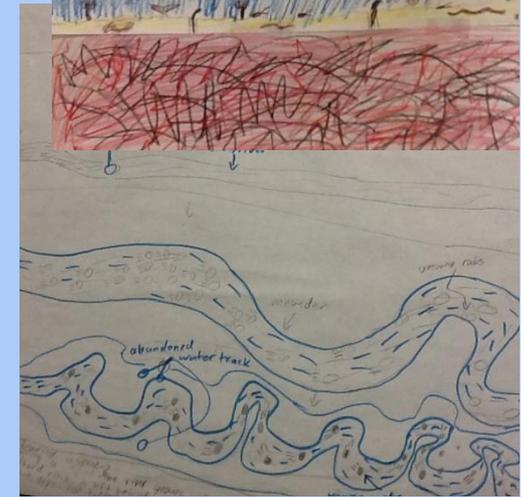
Modeling

Because The gravity energy made the marble go down and then the force moved the other marble.

Reflections

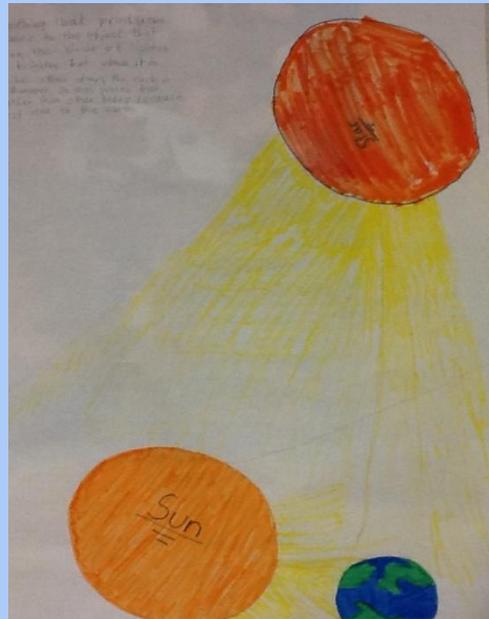
It was different because the speed was way faster.

on the next page
Number (2)



5TH GRADE

Primero	Medio	Final
<p>Toallita De Alcohol</p>	<p>aire</p>	<p>Partículas de alcohol</p>
<p>Todos los Particulas estan en la toallita.</p>	<p>Despues de mas o menos un Minuto los particulas estan evaporando en el aire.</p>	<p>Todos los particulas evaporados en el aire.</p>



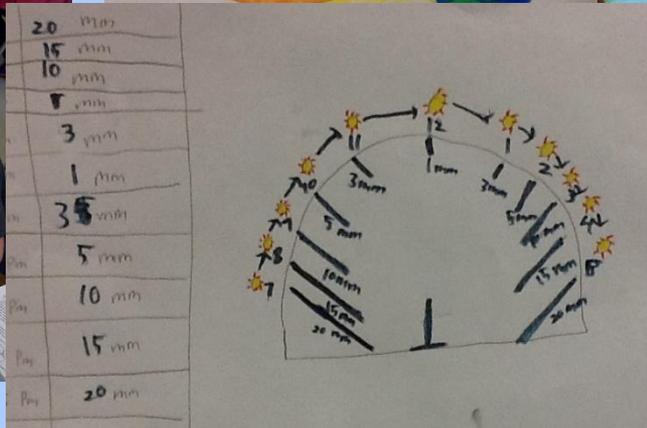
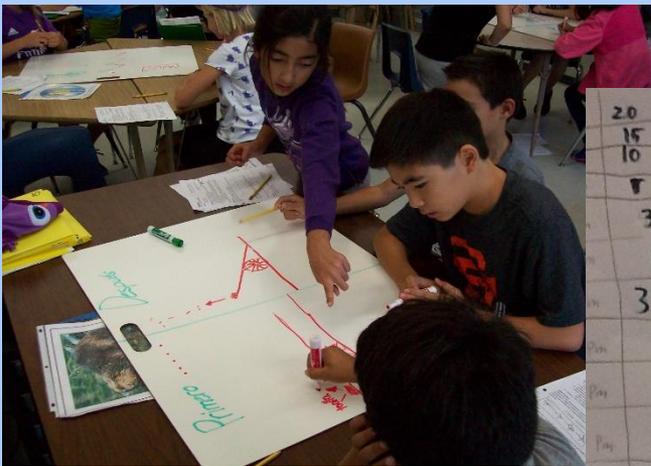
Where did they go? Why Did They Go?

The water made the color leave the crystals.

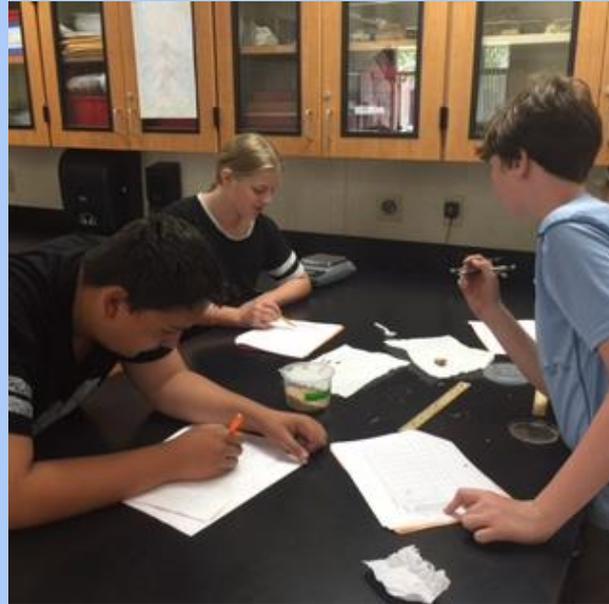
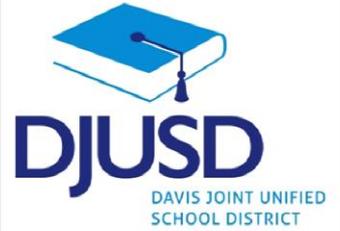
They went because the water made the color leave and the water made the crystals break up into particles.

In the water... Crystals Apart... Particles

When you Stir the water the crystals become smaller!



7TH GRADE



400 East Corvill Blvd.
Davis, CA 95618

February 24, 2016
Major General Charles Frank Bolten, Jr.
Director, NASA
NASA Headquarters
300 E. Street SW, Suite 9F39
Washington, DC 20546

Dear Major General Bolten,

Hi, my name is Eliot Kang and I am a student at Emerson Junior High School. We are studying for a project of Mars. We are doing this as an assignment to decide whether or not NASA should go to Mars.

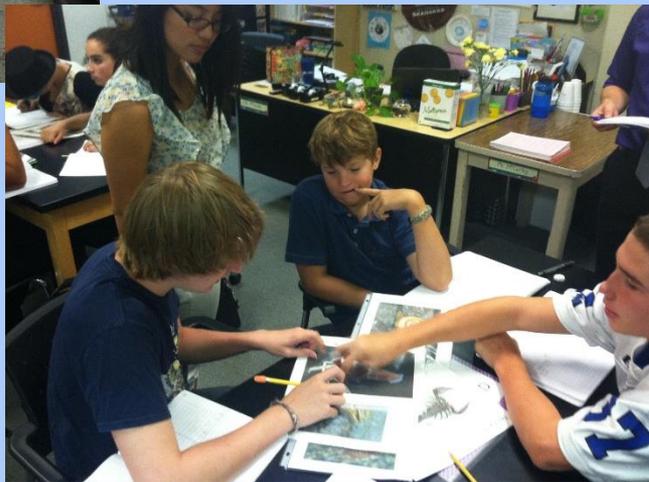
I feel exploring Mars is worth the investment because they already had many successful missions, so they have the experience, and it is a great job opportunity. NASA is the best because the most successful company to have succeeded to Mars, so they have the experience, and the only in the only time they could go. According to the article, "Is Exploring Mars Worth the Investment?" by Evan Brown says that, "If we could do it one step back, it will be the best before we can get back to Mars..." "We have the experience now, the other country has been able to do this." "NASA has experienced other space agencies by a wide margin completing 17 successful missions, since 1968." "Good experience and good expertise is good because they already had 17 successful missions, and the level of expertise, it should motivate them to push ahead, plus they can only go now. You should explore Mars because they have the experience, good experience and they can only go now."

I understand that people may think that traveling to Mars is a waste of money, and we need the human resources, but it is not as expensive as other NASA projects. For example, space shuttles and space stations cost \$4 billion, whereas cost \$1.8 billion and military costs \$100 billion. According to the article, "Is Exploring Mars Worth the Investment?" by Evan Brown, the article says that, "The amount of money Americans spend on Mars is tiny compared to other NASA projects... the agency spent more than \$4 billion on the International Space Station and the cost of space shuttles." "The latest White House report... is costing NASA \$2.8 billion... more than \$80 billion the military spent in 2012." "Having changes to good because then you could have money for other expensive NASA projects and resources. I know that people think that we need resources, but going to Mars is cheaper than other NASA projects."

I think you should go to Mars because you have had successful missions and the experience, and this is your only chance, plus it is not that expensive. My address is 400 East Corvill Blvd. Thank you for taking the time to read my letter.

Sincerely,
Eliot Kang
Student
Emerson Junior High School

8TH GRADE



BIOLOGY



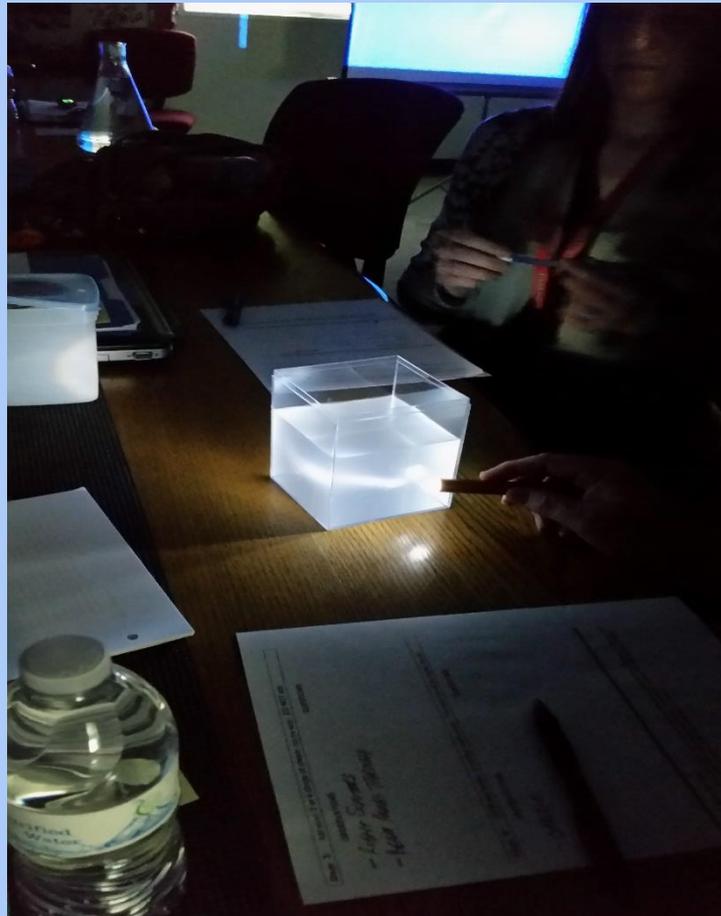
Is the H. family related to Jeff?

Claim: Jeff IS related to the H family because his STR matches both mom's & dad's.

Evidence:
On chromosome 21 his STR his father's genes. And on chromosome 13, his STR matches both parents.

Justification:
Even though the dad is dead we were able to figure out the evidence for Jeff's identity.

PHYSICS

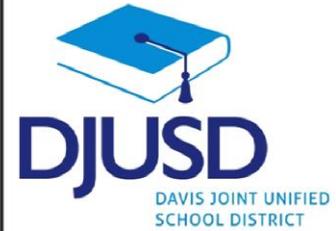


FOURTH/FIFTH GRADE IMPLEMENTATION PLAN



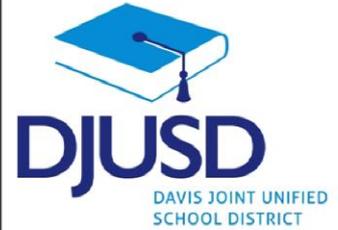
Grade		2015-16	2016-17	2017-18
4	Current Topic	Ecosystems Weathering and Fossils	Weathering and Fossils Energy Waves	Weathering and Fossils Energy Waves Plant/Animal Structure and Function
	New Topic	Energy Wave	Plant/Animal Structure and Function	Natural Resources/Human Impact
	Removed Topic	Electricity and Magnetism Rocks and Minerals	Ecosystems	
5	Current Topic	Matter Human Body	Matter Human Body Sun, Stars and Gravity	Matter Sun, Stars and Gravity Interaction of Spheres
	New Topic	Sun, Stars, and Gravity	Interaction of Spheres (geo, bio, hydro and atmosphere)	Ecosystems Natural Resources/Human Impact
	Removed Topic	Weather		Human Body

NGSS RECOMMENDATION FOR 2016-17



- Maintain our course of slow implementation, but continue 'pilot' of integrated approach for middle school years (grades 6-8) as most of us have only begun to implement actual topic changes and NGSS approach, and are not yet integrating.
- Begin looking at sample assessments from various organizations (Concord Consortium/Research & Practice Collaboratory) as models to begin creating assessments for the work we are doing.
- Adapt lessons we have in CPO and Foss to make more NGSS, look for lessons from others, design our own
- Design and offer one NGSS workshop per trimester for primary
- Maintain a .2 FTE PD coordinator to facilitate the above, and further involve teachers in presenting their lessons and work.

QUESTIONS?



*Thank you for listening,
and for your ongoing support
of our efforts
to incorporate NGSS
into science in DJUSD*

