

TOPScience (TOPS)

Teaching

Opportunities for

Partners in

Science

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Art Krakowsky

**TOPS was started in
1993 by:**

Judi Wilson

**Director of Science & Special Projects
San Joaquin County Office of Education**



Hector Timourian

LLNL Scientist

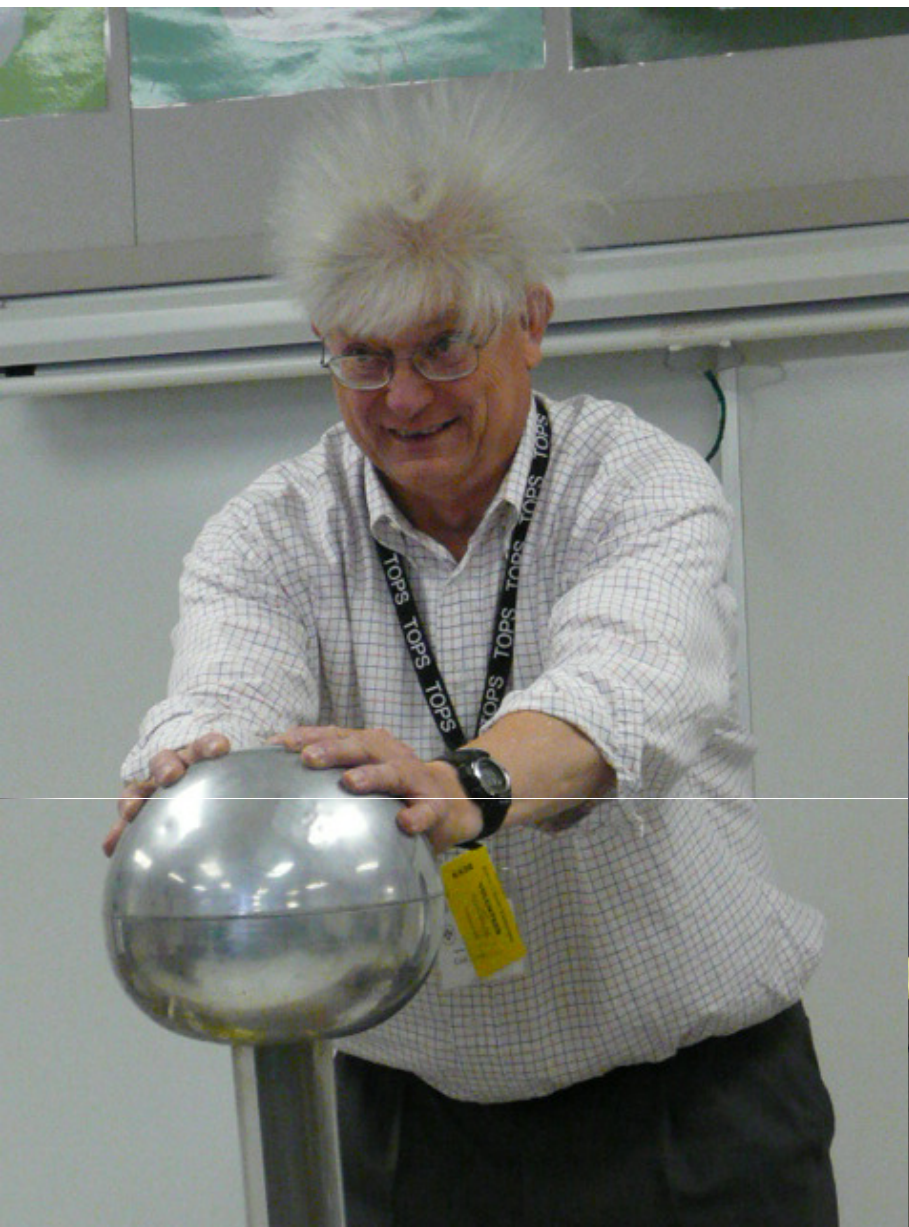


What is TOPS?

- Program for K-8 science education
- "Partners" are retired scientists, engineers, teachers, etc.
- Outcomes:
 - Students and teachers learn from us
 - Volunteers have fun and feel appreciated
 - We provide demonstrations and activities that teachers don't have time or equipment for



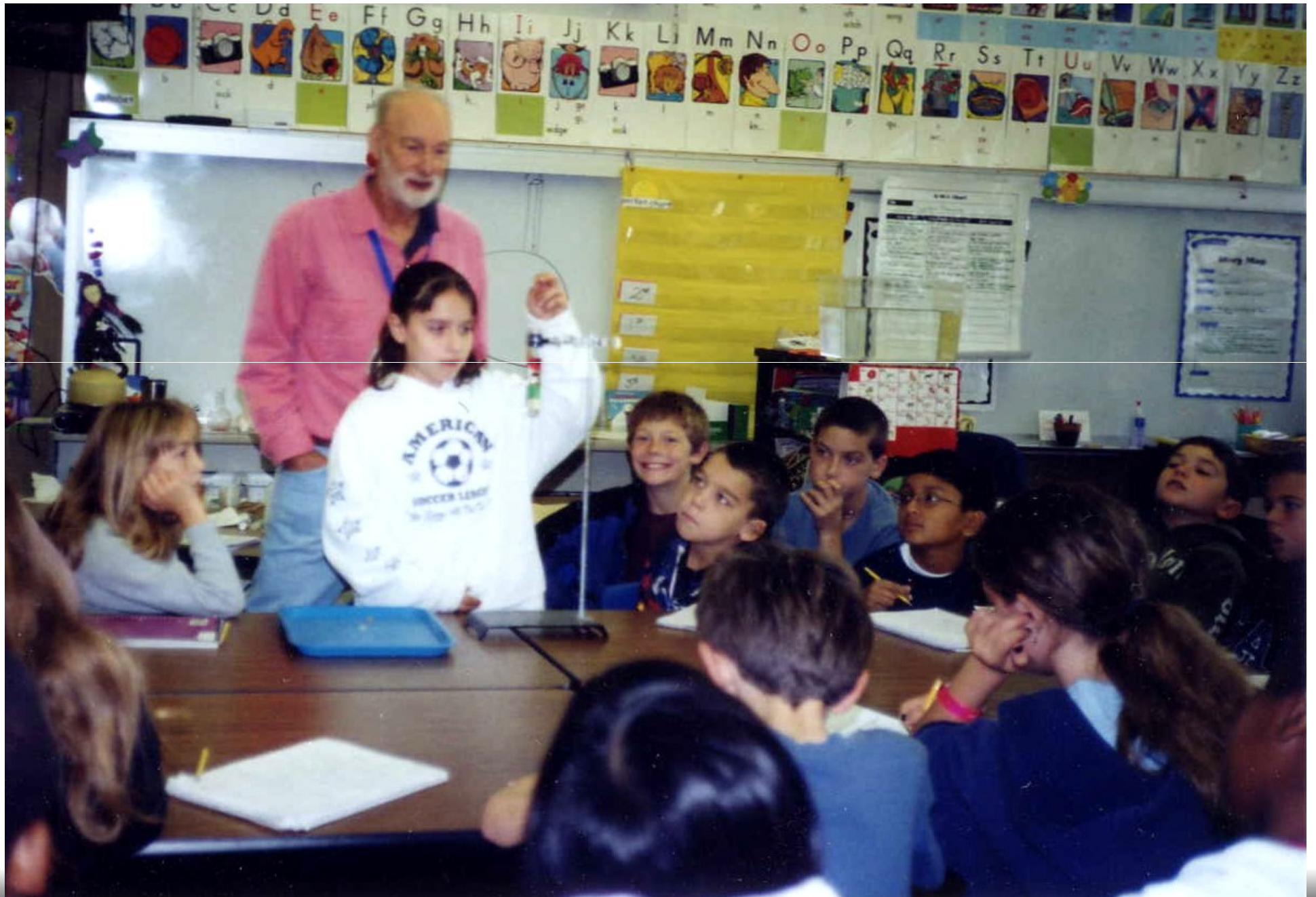
Volunteers and Teachers too



Planetarium



Fascinated with density

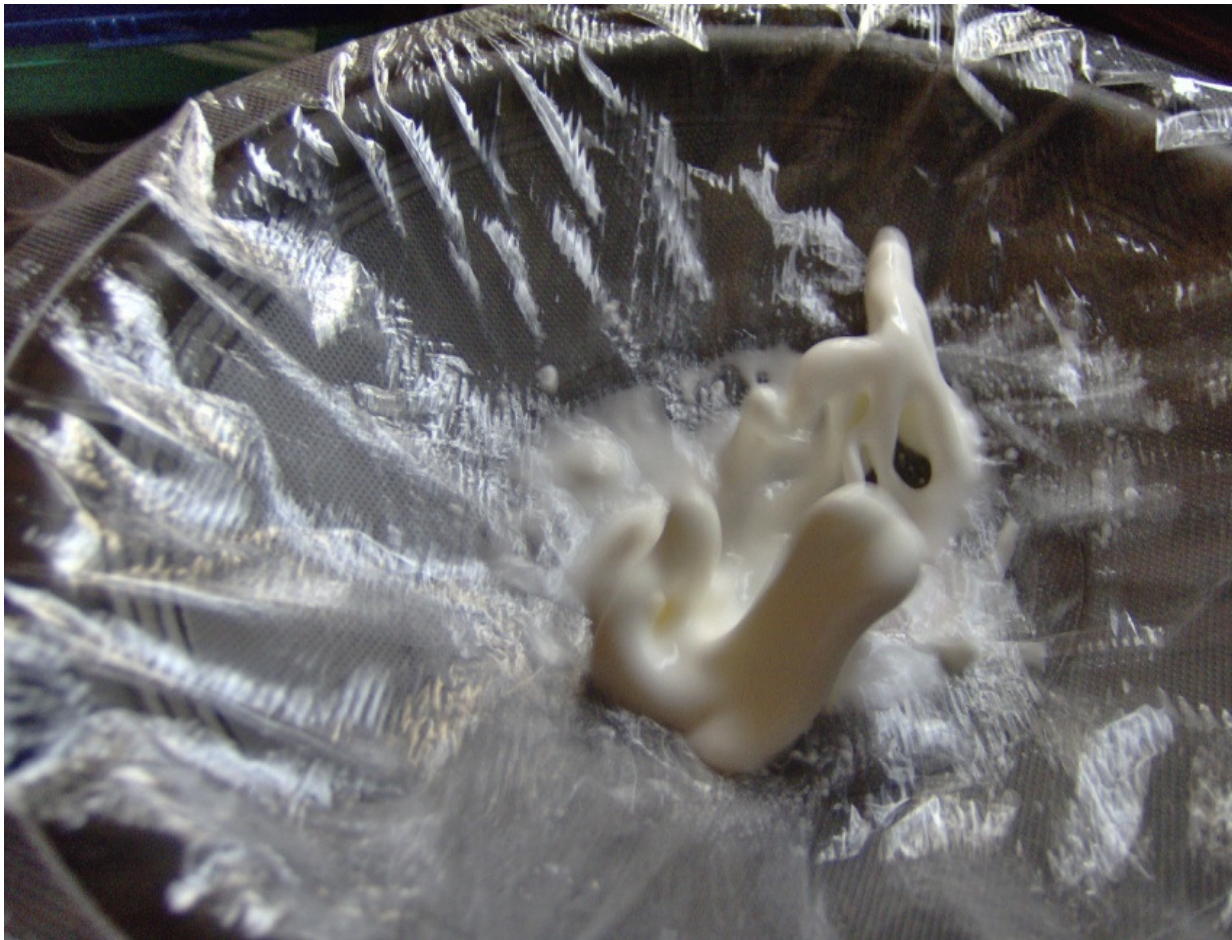


Electrolysis



Dancing Ooblek

(Thixotropic and Dilatent Discussion)



Chladni Plate



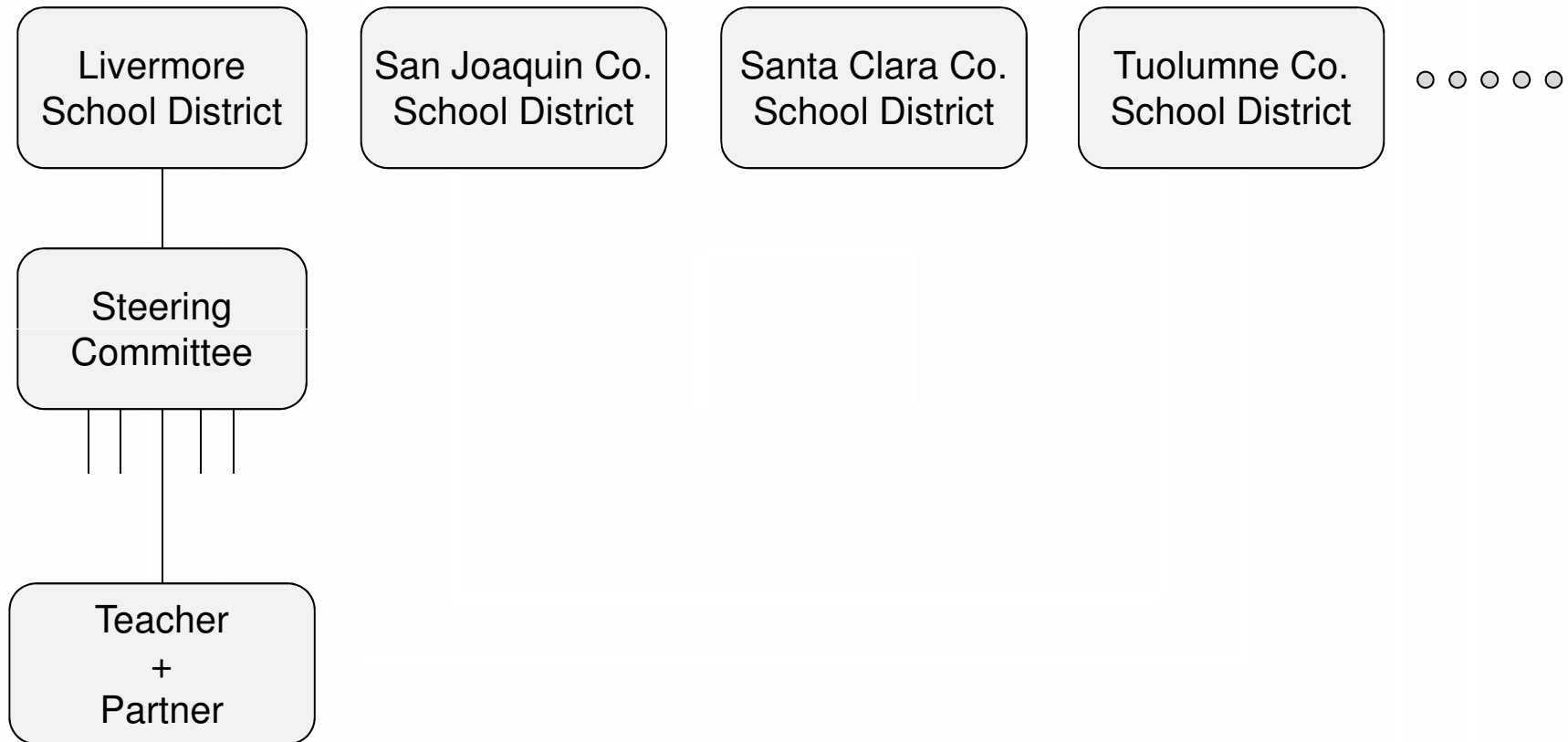
Electric Motor Coils—Electromagnet Theory



Every student makes a working motor



TOPScience Organization



Why Partners ?

- Partners concept is important
 - Scientist/Engineer
 - Classroom teacher
 - Partnership lasts at least one year
- Together they decide what is best for
 - The Partner
 - The Teacher
 - The Students

What can Partners do?

- Develop lesson plan (e.g., properties of magnets/electricity)
- Set up lab (e.g., students explore/discover properties)
- Conduct or team teach a class
- Use scientific language and methods
- Assist with Science Night for parents/students
- Unique students get help

“I have two comments and a question”
(4th grade)



Family Science Night

Parents and students do about 20 hands on experiments together. Usually 4-500 attendees



Teacher Impact

- Strengthens knowledge
- Saves time
- Builds enthusiasm
- Rewarding

Some Numbers

- Successful operation since 1993
- Operating in 5 counties
- Currently about 50 Partners
- Elementary and middle schools

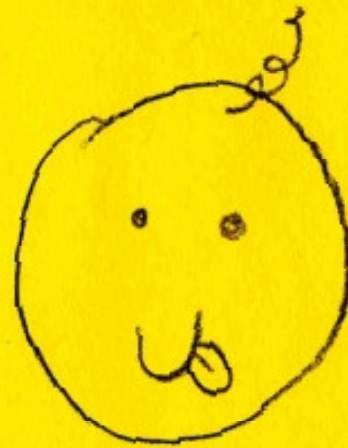
Some Results (names hidden)

Dear Mr. K,
You have been a GREAT help to us.
I am not the best science student but you made
me understand more and I started getting
more 3's than ever! Your slideshows are funny
and they give us more information on
electricity and how it is my FAVORITE
subject in science now. You and Mrs. Boil
make a great team and together you
can help kids that need more help.

From



YOU ARE
THE BEST!



Dear TOPS specialist,

I've had a lot of fun learning about the respiratory system.

Thanks for coming to our classroom. I've never known that it could be so fun! It must be very fun coming to teach us about all these things! I think it's very special having you come here. Thanks again for coming!

Yours Truly,



and
Rancho las Positas

Thank



you!!



for your
presentation.

-Thank you for your presentation
about science. I really liked
the one about motors. I loved
making that motors. I made one
at home!!

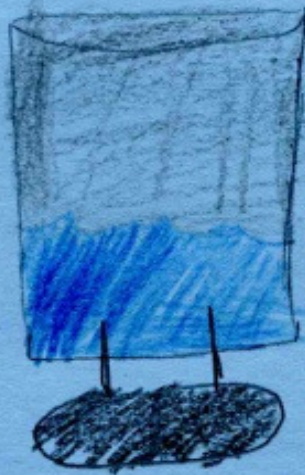


science rules

get it!!



ruler



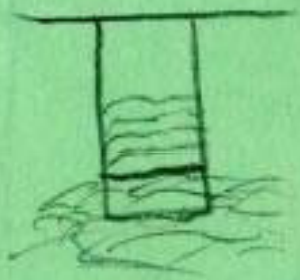
THANK YOU
for teaching us
about the scientific method
Thanks to you I did a science
project for the science fair
and I did the exact way
you taught us.

Your student



room 14

Paper Chromatography



Thank you Dr. K
for everything. You are
amazing. Because of
you I want to be a
Scientist when I
grow up Thank you for
being patient with us.

From,
 in
room #6

P.S You are very funny.

Thankyou Dr.K
you have taught
me so much!
Now I'm going
to become a
Scientist [redacted] LOL.
Maybe.

Sincerely,

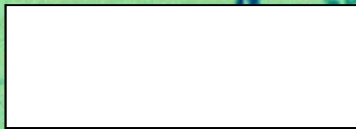
[redacted]
Sunset School

P.S. Visit us @
MendanHall. ▽
2012

Thank you for,

- Vande Grootgenda
- Slide shows
- Cow magnet
- helping with
ligh bulbs
- not yelling and
being patient

To: Dr. K

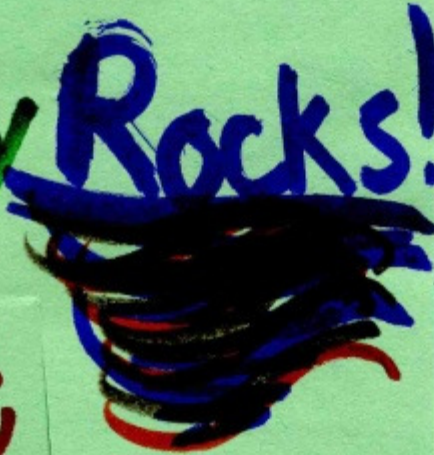
from: 

P.S next year
I'll get A+ in Science

Science
totally Rocks!

Electricity
Is Really
Cool!

YAY.
DR. K.



Science
was so
AWESOME.

You're
COOL!

Come
Back
Next Year

You ~~are~~ are such an
awesome guy, Dr. K, I
had tons of fun!

THANKS.



Thank you Dr. K. for
volunteering your time to help
us get better in science. I
remember you taught us
about density. Archimedes discovered
the density in gold than the crown
he wanted. You also showed us
some air pressure experiments.
You put a marshmallow and
a balloon in a bell jar and took
out the air. The balloon got
bigger than you put the air
back and it went back to its
original size. The marshmallow
grew than when you put the

air back it shrivled up. Another
thing you showed us was
a video presentation on lungs.
I learned it is really bad to
smoke or breath in polluted
healthy good looking lungs.
You had really good patience
and humor. It was really cool
when you seperated the
hydrogen and oxygen gases
in water. Thank you sooo
much. Have a great summer.

[Redacted]

Room 6

Mr. K, Thank you!

Thank you!

Thank you! for so much you have done I love the Van de Graff generator 😊!

alot of the stuff you have done is so much fun! and cool to watch. 😊 I think Science is Rad!

😊😊😊

Thank You!



You are a genius!



Program costs

- Cost per school depends on District policy, teacher stipends, grants, conferences, special projects, training.
- No cost to Partners

Why is TOPS so Successful?

- Teaching, not entertainment
- Depth---one year assignment
 - Know the students
 - Teach to students level
- Training for Partner and Lead Teacher
- Tailored to school and scientist's needs
- Hands-on learning

Discovering density



TOPScience has many resources that schools can utilize

- Gems kits
- Foss kits
- Shared equipment –like Van de Graaff, pig lungs, etc.
- Shared knowledge

TOPScience Sant Clara Co.
has a website

Topsofscv.org

**There you will find the TOPS
guidebook and other information**

How You Can Help Our Future Scientists and Engineers

Contact:

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Accidental but appropriate

