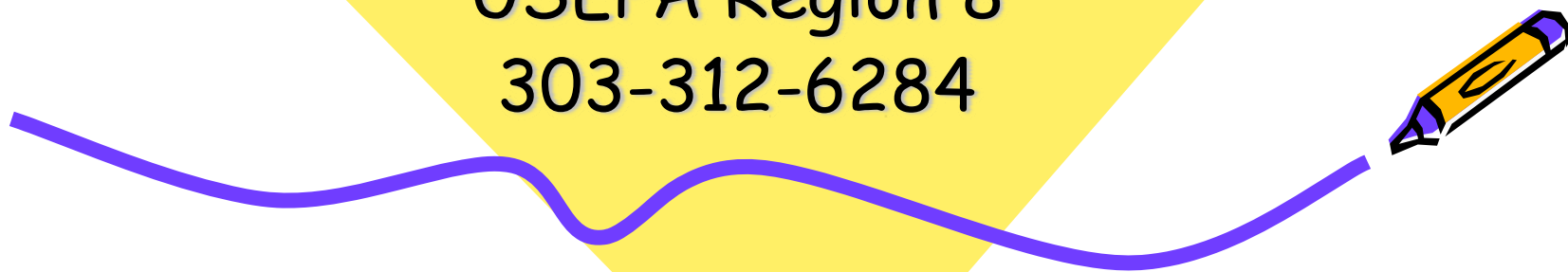
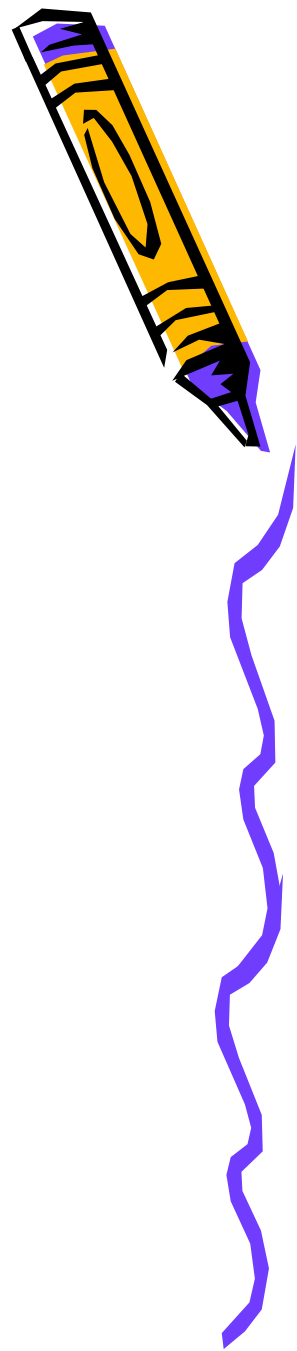


# School Chemical Cleanout

Matthew Langenfeld  
USEPA Region 8  
303-312-6284



# Region 8 School Cleanout Success

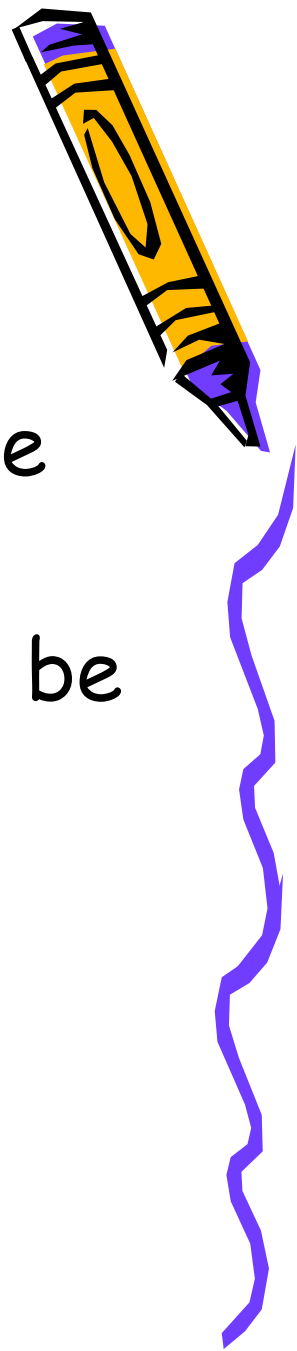


- 154 Schools Cleaned out to date
- Schools made safer for 57,000 students
- 60,000 pounds of hazardous chemicals properly disposed

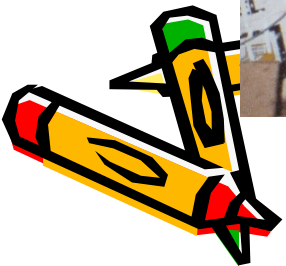
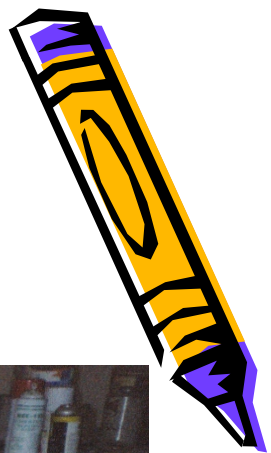


# Greatest Challenges

- Obtaining an accurate and complete inventory of all chemicals
- Determining chemicals that should be properly disposed
- Buy in from administration
- Finding funding for cleanout



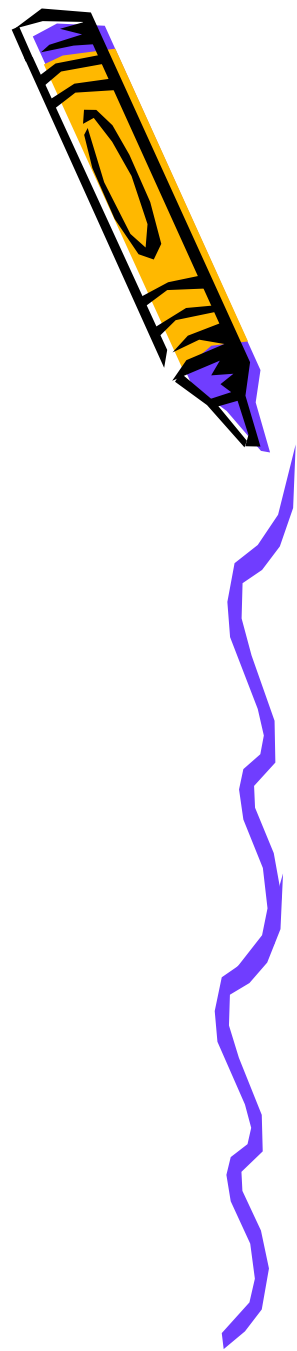
# Does my school require chemical cleanout?





# First Step

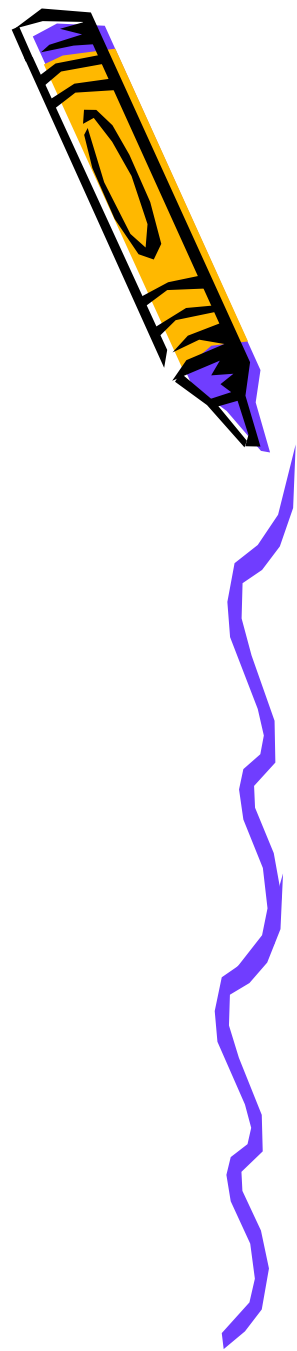
Call Bonnie Rouse MDEQ  
406-841-5252





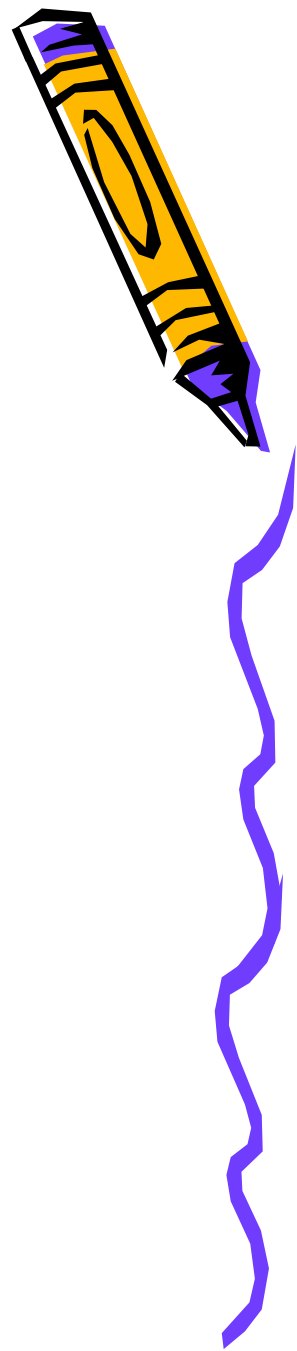
# Planning

- Obtain administrative buy in
- Set up a team
- Conduct an inventory of chemicals
- Determine your strategy



# Chemical Management

- Need a written plan
- Designed for your school or classroom
- Minimize inventory
- Remove toxic and dangerous chemicals
- Go green and/or microscale







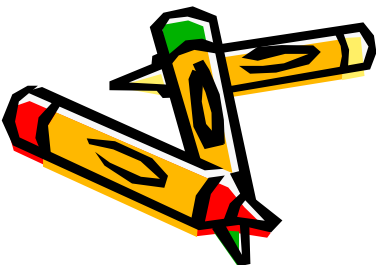
# Question: What is Responsible Chemical Management?



Answer: Responsible chemical management involves taking steps to ensure chemicals in schools do not endanger students and school personnel.

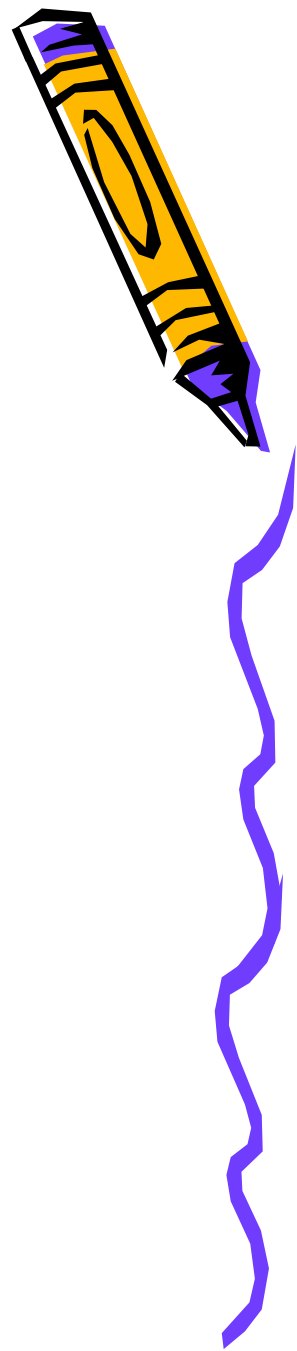
This may include:

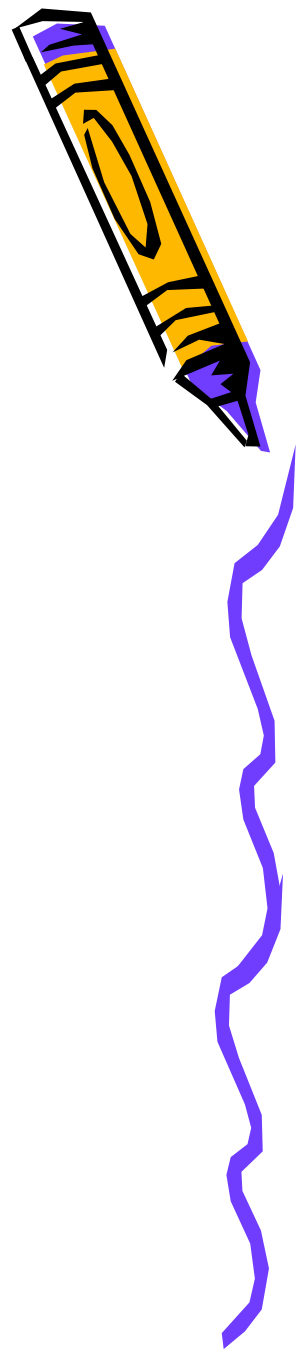
- Evaluating chemicals for need, quantity, and appropriateness;
- Properly labeling, storing, and securing chemicals; and
- Safely disposing of waste and/or excess chemicals.



# Conduct a School Wide Assessment

- Look at all areas
- Closets
- Shops
- Art/drama
- Locked areas
- Laboratories
- Warehouses
- Maintenance areas/sheds
- Buildings and Grounds

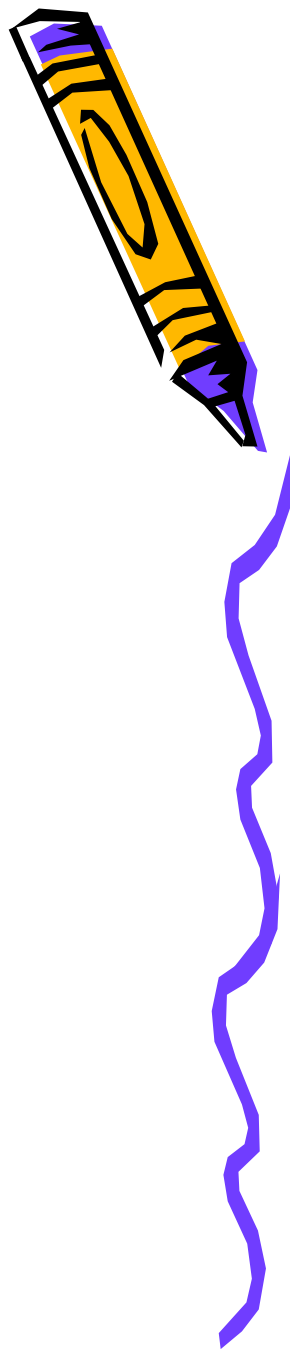


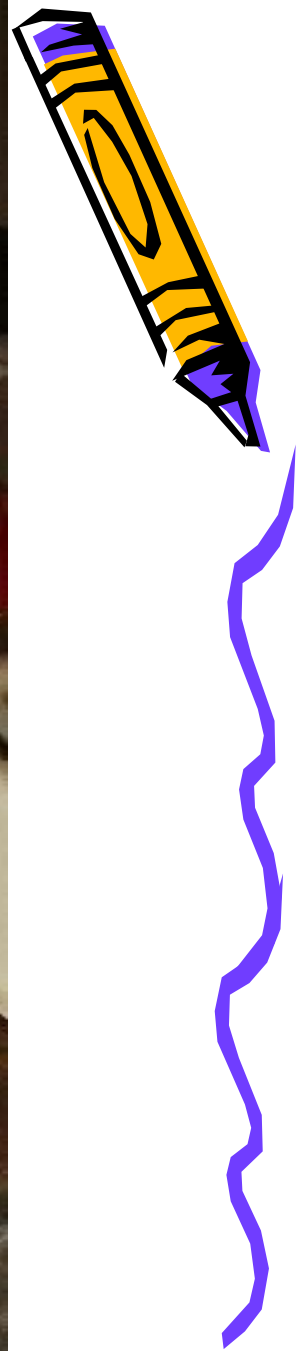
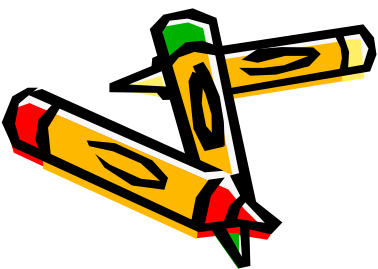


Lets go on an assessment



# Toxic Materials





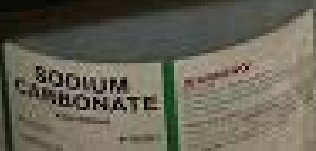
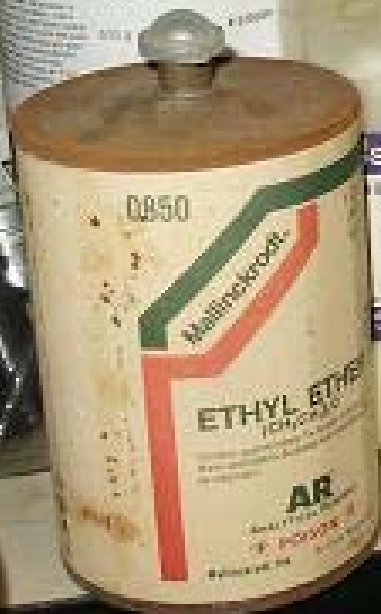
02

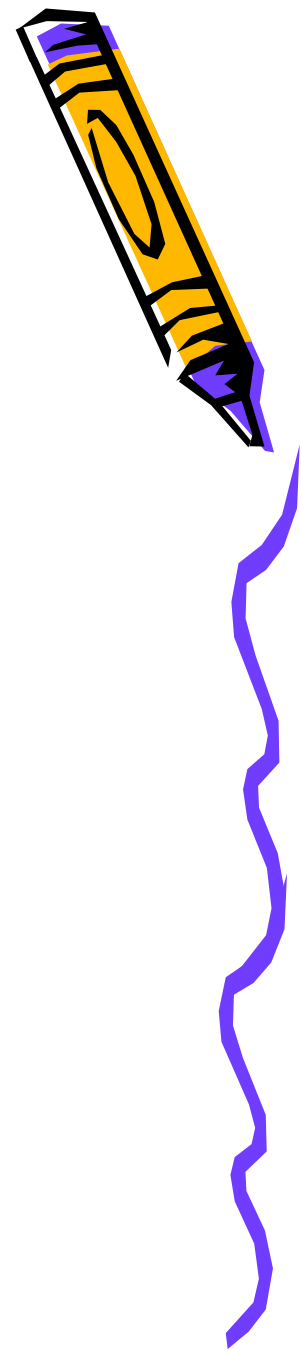




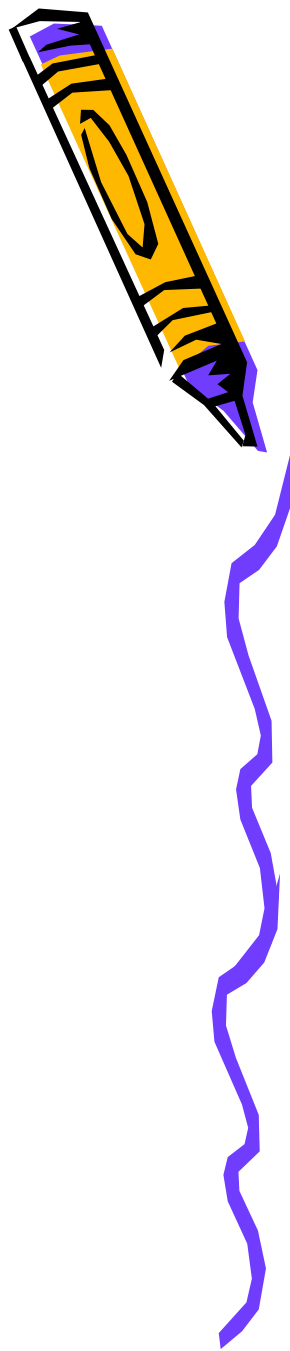








# Hazardous Materials



his Saftepak container combines  
quality protection of glass...  
safety protection of metal.

Petroleum  
Ether

8 PINTS  
PX425-01

SAFTEPAK CONTAINER  
MADE OF POLYETHYLENE  
PROTECTS GLASS FROM SHOCK  
AND IMPACT. PROTECTS METAL  
FROM CORROSION.

MCE

C-183

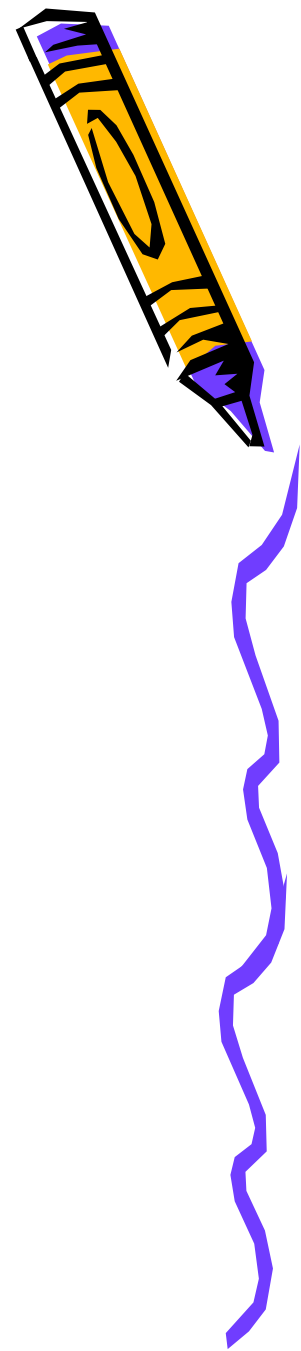
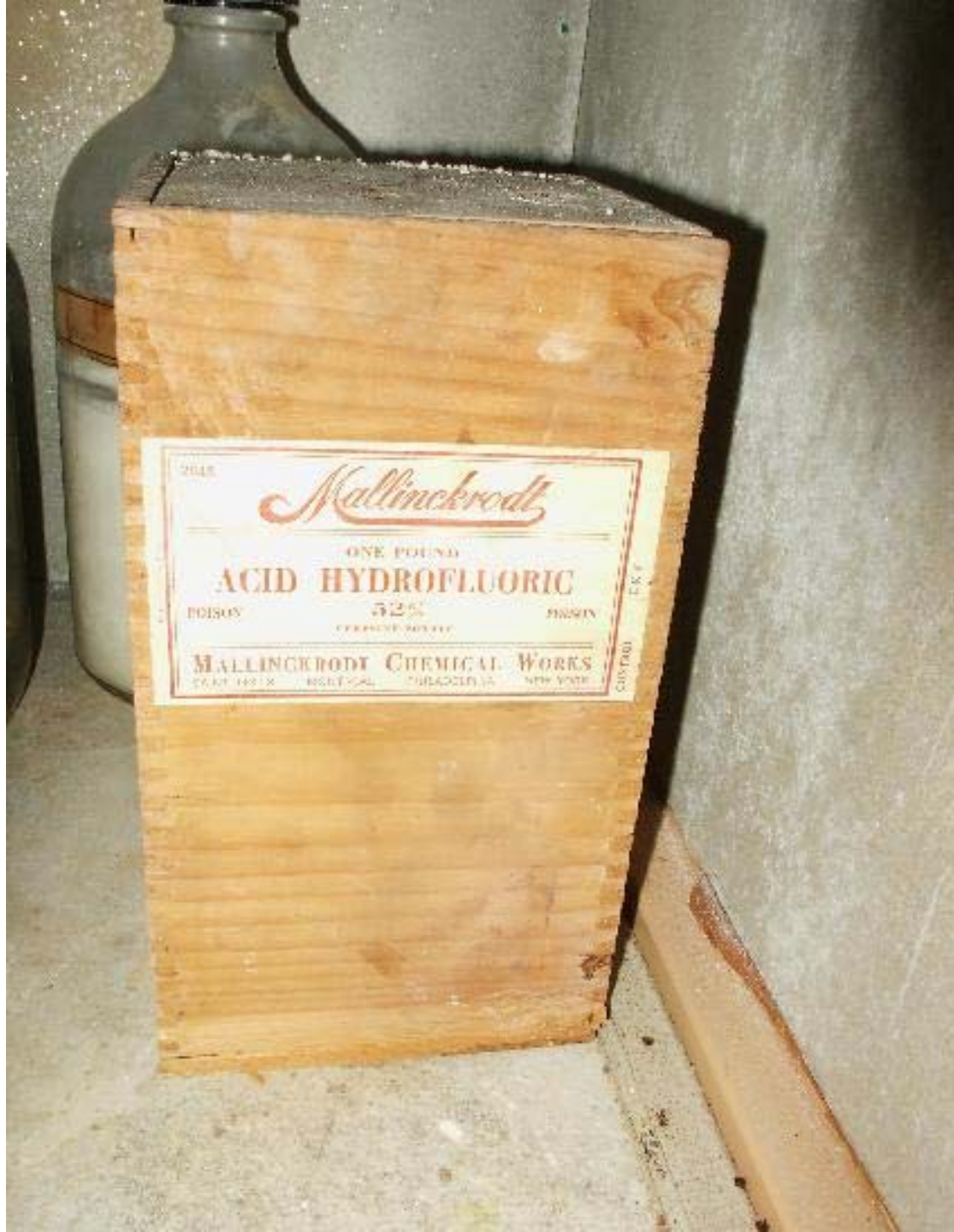
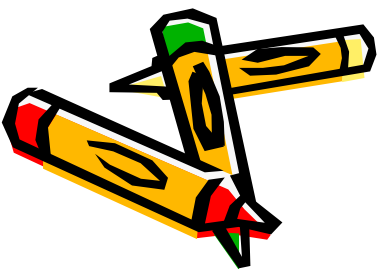
Purified Grade  
**Carbon  
Disulfide**

FISHER SCIENTIFIC COMPANY

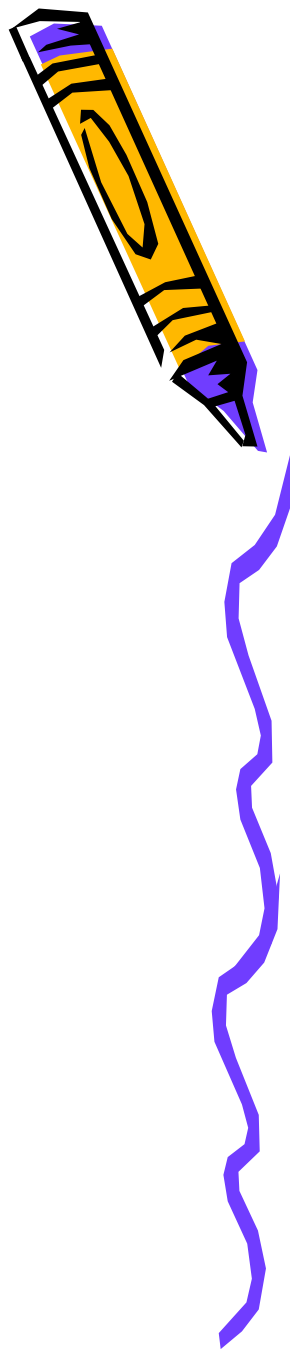
EXTRAORDINARILY  
FLAMMABLE







# Incompatible Storage







CHICAGO • MILWAUKEE • LOS ANGELES  
ULINE

CENT

15-8051

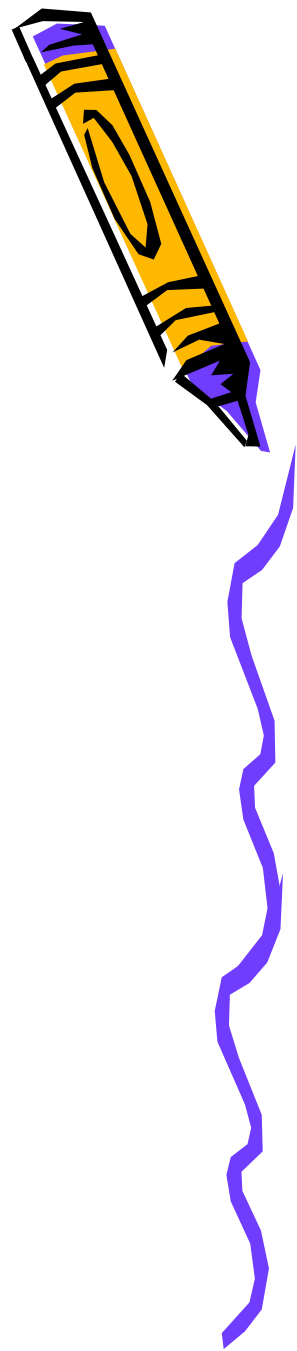




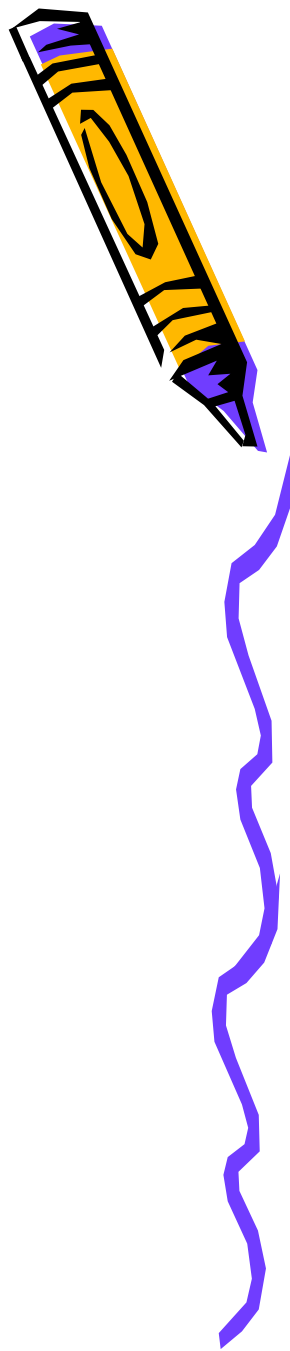


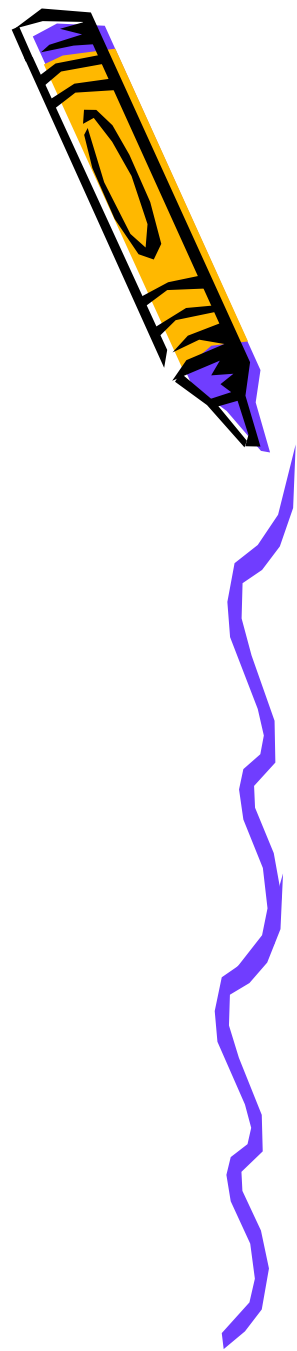
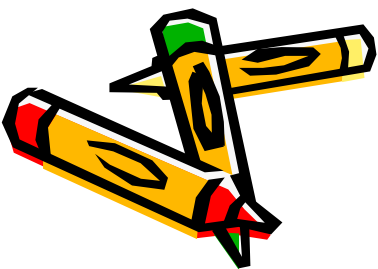


Scimago  
Acid/Corros

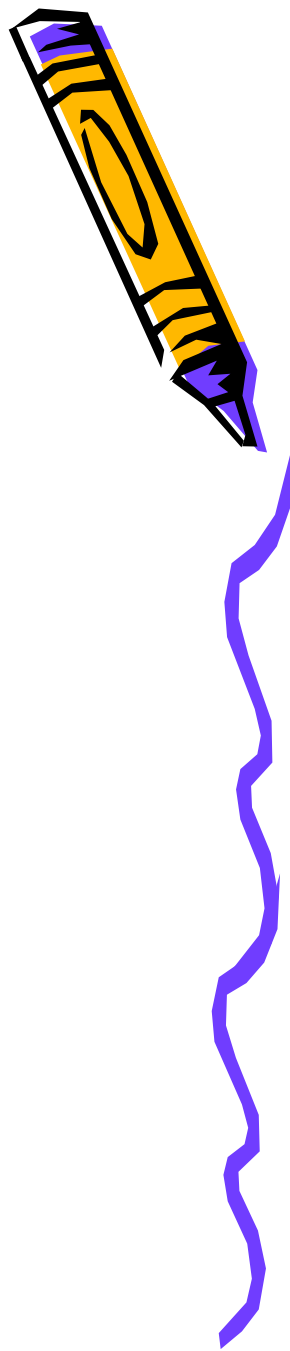


# Art Classrooms





# Maintenance Chemicals

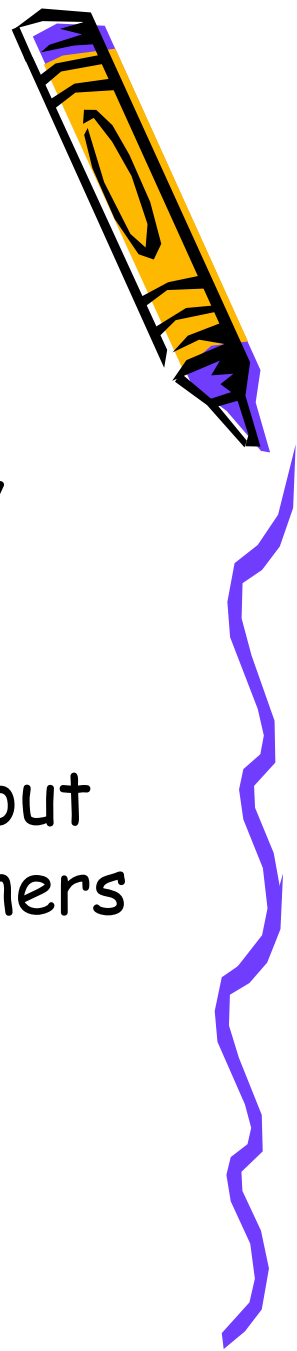








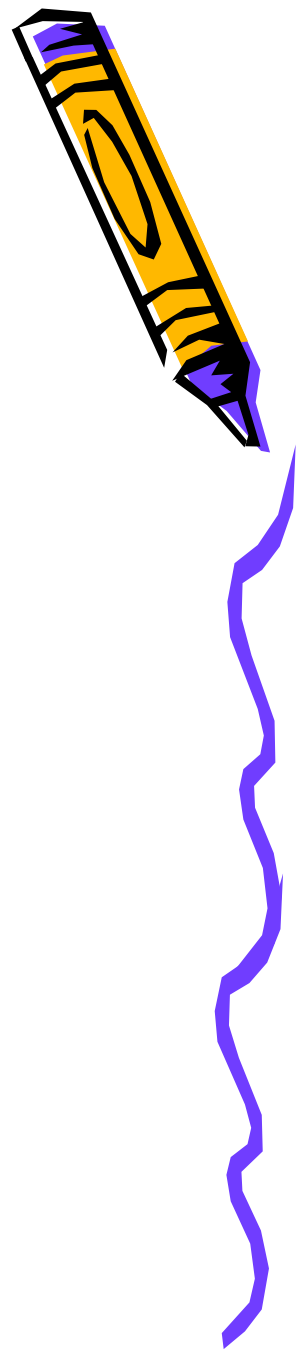
# Note Chemicals and Condition of each area



- Cleaning chemicals closet - clean, 20 containers, not leaking, Need Inventory
- Chemistry Lab, Several shelves of chemicals, no inventory, question compatibility, unknowns, odors, teacher only uses a few chemicals - Need Cleanout
- Biology Lab, Critters in formalin containers leaking formaldehyde odors, unknown stains - Need Cleanout



What do I do once I've  
decided to cleanout  
chemicals from my school



# Complete a Chemical Inventory



- Inventory all chemicals
- Determine those to be properly disposed and come up with a list
- List the name of the chemical, trade name, ingredients, percentages, phone numbers, container size, type, condition, leaking, seal broke, notes on bottles, weight, volume, chemical name, unknown,





## MSES Chemical Inventory Sheet

School Name \_\_\_\_\_

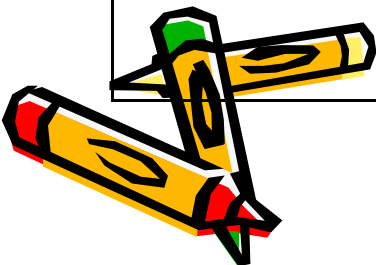
Contact Name/Phone \_\_\_\_\_



Chemical Name		Number of Containers	Container Size	Container Type	Physical State

### Key

G=Glass    M=Metal    P=Polyethylene    F=Fiber  
L=Liquid    S=Solid    A=Aerosol    R=Residue (Sludge)





## EXAMPLE MSES Chemical Inventory Sheet

School Name XYZ Middle School Somewhere, USA

Contact Name/Phone John Doe / 123-4567

Chemical Name		Number of Containers	Container Size	Container Type	Physical State
Sulfuric Acid 60%		2	1 L	G	L
Boric Acid		1	1 Lb.	F	S
Sodium metal in oil		1	16 Oz.	G	L
Broken mercury thermometers, in baggie		1	1 Gal	G	S/L

### Key

G=Glass

M=Metal

P=Polyethylene

F=Fiber

L=Liquid

S=Solid

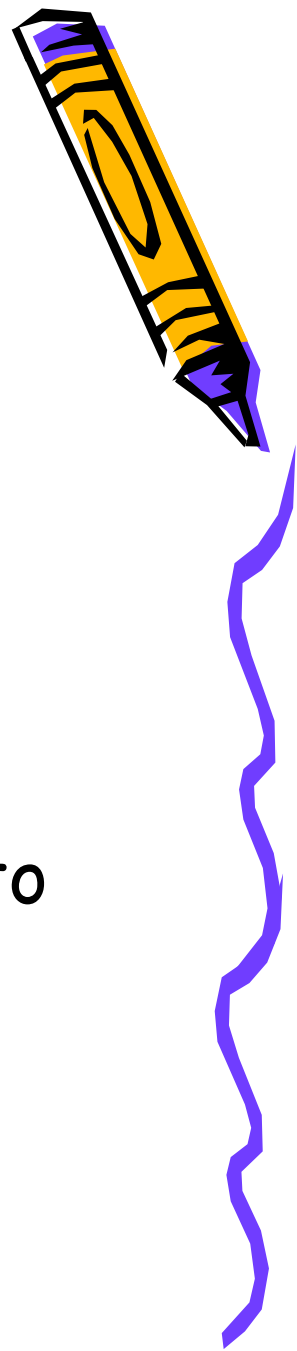
A=Aerosol

R=Residue (Sludge)





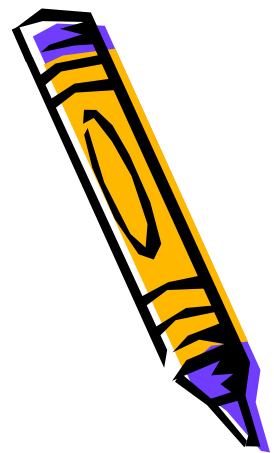
# Obtain Cost Estimates for Proper disposal



- Send inventory of chemicals to be disposed to a Waste Broker
  - o Recommend get 3 bids
  - o Ensure they are capable
  - o Give them a time frame to get back to you



# Hazardous Waste ID Number Required from EPA ?

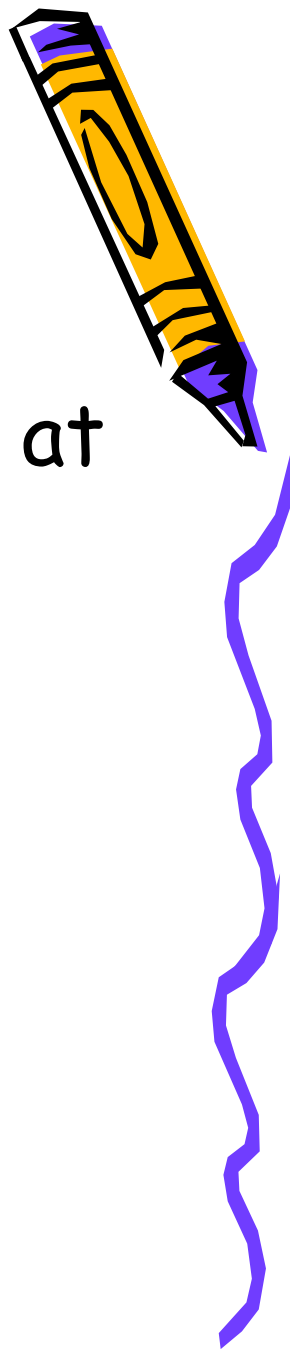


- Generation of hazardous waste (acids, bases, toxic) over 220 pounds per month
- Acutely hazardous waste (P-Listed) over 2.2 pounds
- Waste Broker may be able to help
- Contact MDEQ or EPA for help



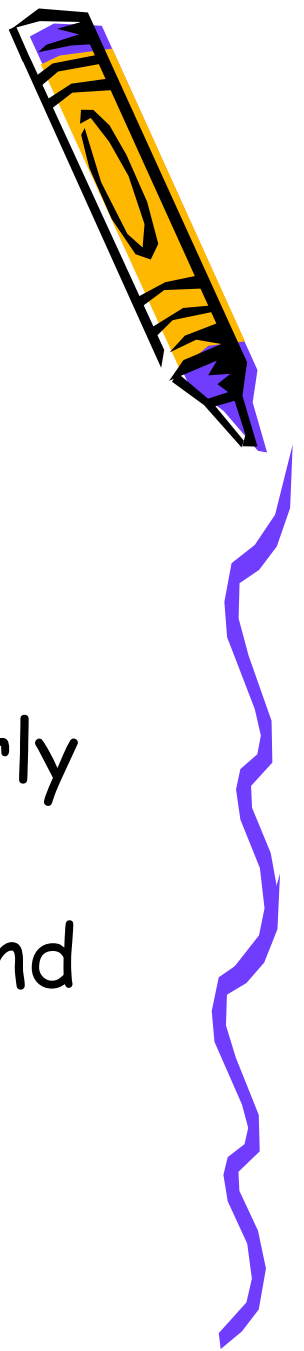
# Locate Funding

- School District most viable source at this time
- Insurance
- Inventory needed to demonstrate need
- Private industry
- EPA grant funds not available



# Arrange for Cleanout

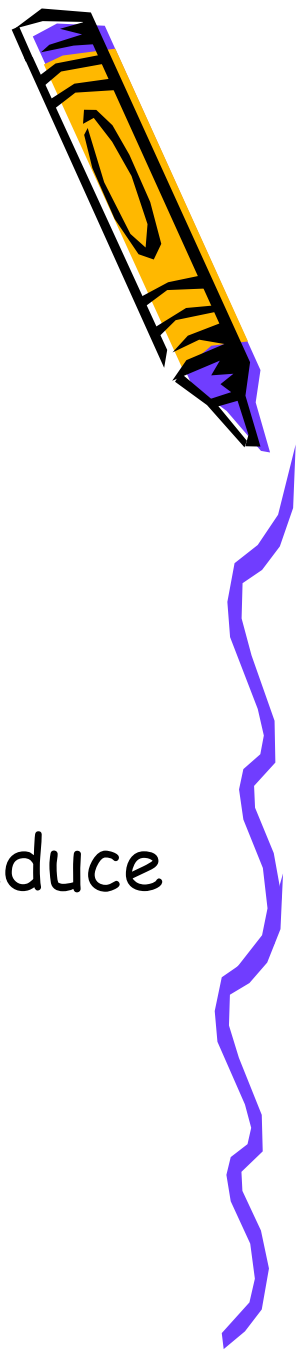
- Arrange a schedule
- Make sure cost estimate and inventory is up to date
- Make sure chemicals will be properly disposed
- Like to see chemicals lab packed and manifested





# Goals for Schools

- Create a safer environment by:
  - o Removing hazardous chemicals
  - o Managing chemical inventories
  - o Promoting pollution prevention techniques and best practices to reduce laboratory hazards



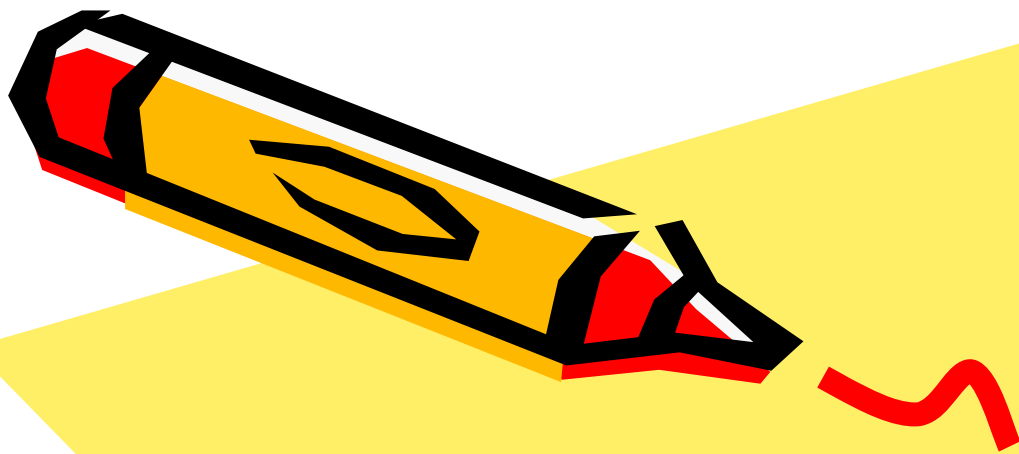
# Behavior Changes Needed



- Teachers stockpile and inherit chemicals
- School superintendents, principals, and teachers are not aware of dangers
- Consistent message from school leaders on safety
- Communication to non-chemist teachers
- Inventories up to date
- Chemicals not retained unless needed







# Contact

Matthew Langenfeld

303-312-6284

[Langenfeld.matthew@epa.gov](mailto:Langenfeld.matthew@epa.gov)

