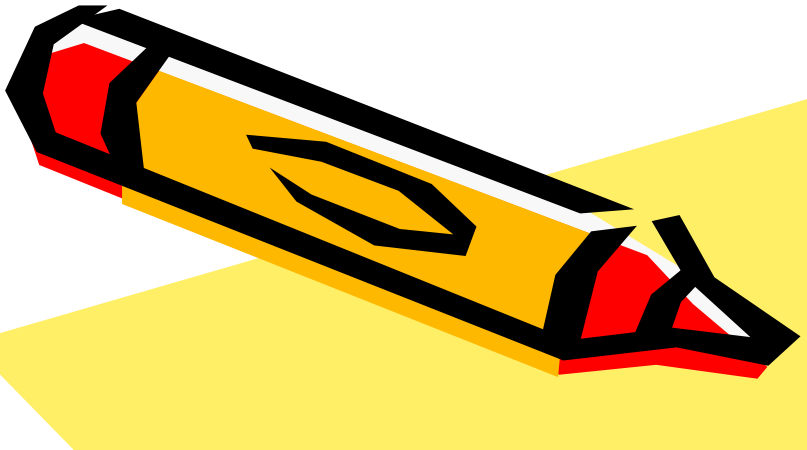
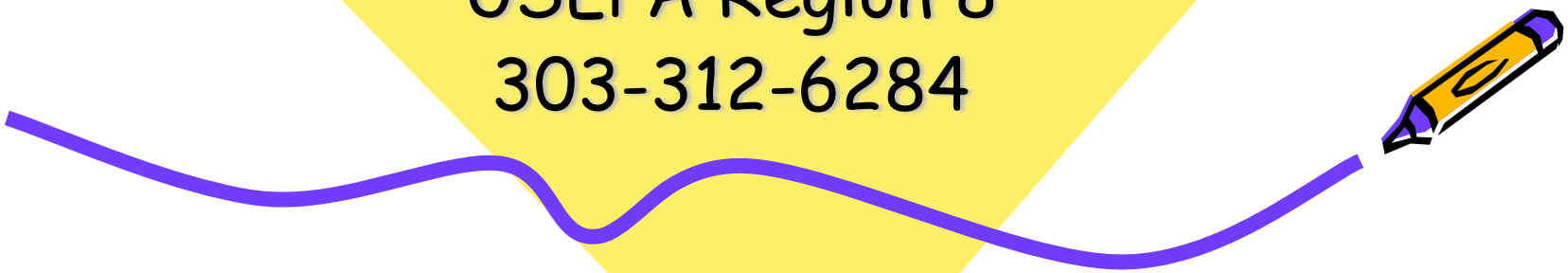


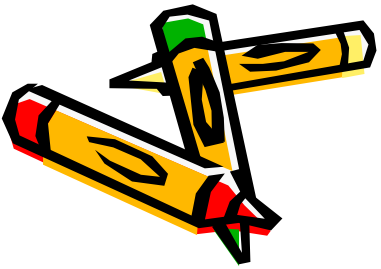
School Chemical Cleanout

Matthew Langenfeld
USEPA Region 8
303-312-6284



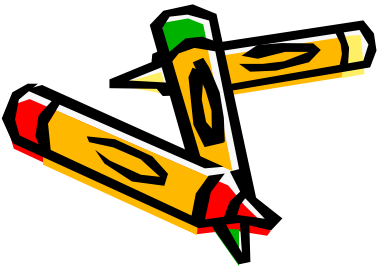
Region 8 School Cleanout Success

- 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

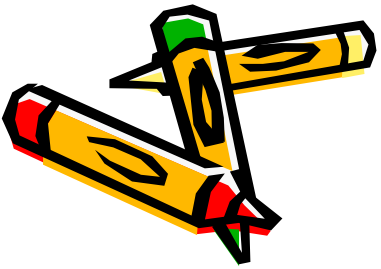


Does my school require chemical cleanout ?

First Step

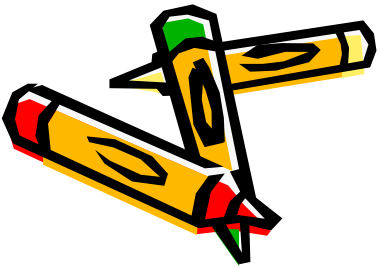
Call Bonnie Rouse MDEQ

406-841-5252



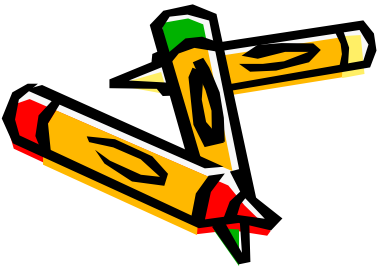
Planning

- 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

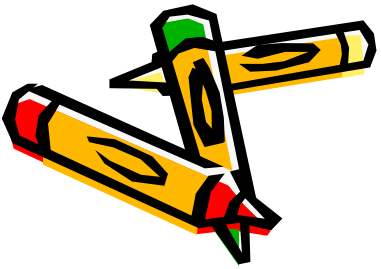


Question: What is Responsible Chemical Management?

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

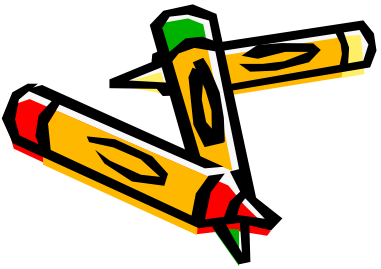
This may include:

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

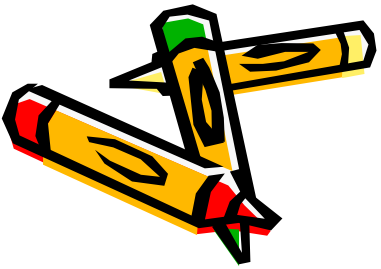


Conduct a School Wide Assessment

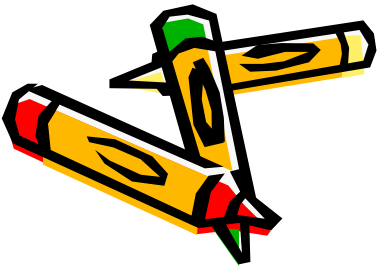
- Look at all areas
- Closets
- Shops
- Art/drama
- Locked areas
- Laboratories
- Warehouses
- Maintenance areas/sheds
- Buildings and Grounds



Lets go on an assessment



Toxic Materials




9154-2
Benzene

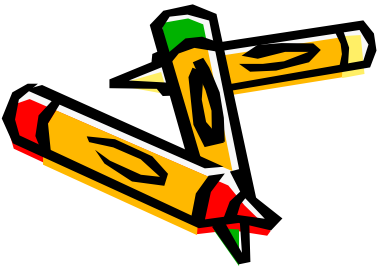

Aniline


POTASSIUM
CYANIDE
POISON
Arsenic
Trioxide

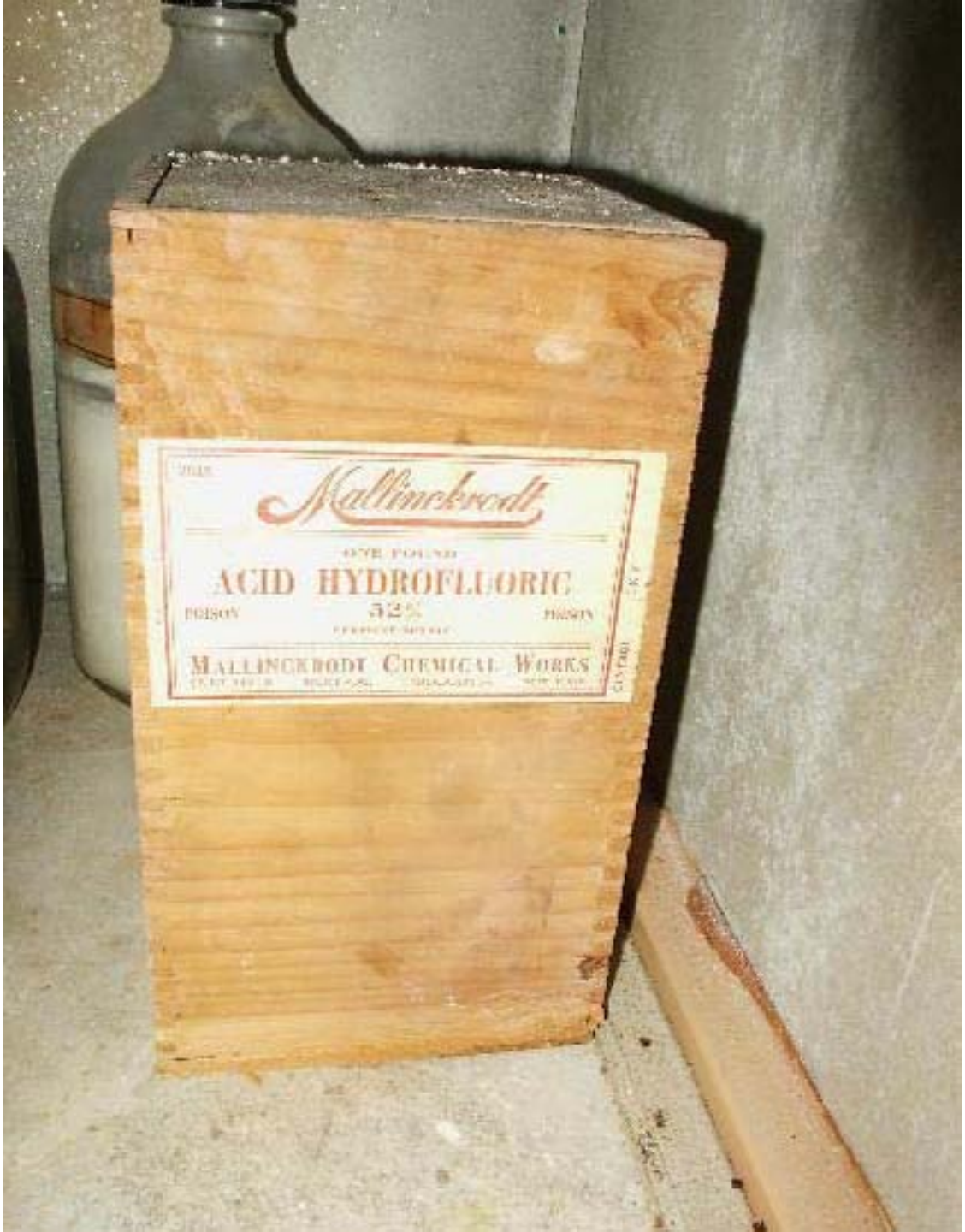

Charcoal
SULFUR
ETHYL ETHER
AR
SODIUM CARBONATE


DANGER
POISON
Lead Nitrate
DANGER
POISON
5032
1 LB.
Mallinckrodt
FERRIC NITRATE
(CRYSTALS)
$Fe(NO_3)_3 \cdot 9H_2O$
ANALYTICAL REAGENT
Mallinckrodt
1 LB.
SODIUM
NITRATE
WARNING!

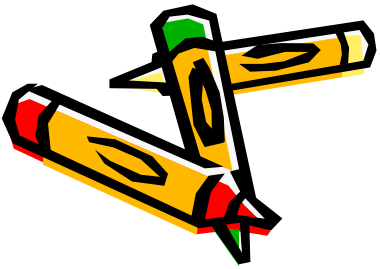
Hazardous Materials




Petroleum
Ether
8 PINTS
PX425-01
C-183
Purified Grade
Carbon
Disulfide


Mallinckrodt
ACID HYDROFLUORIC
POISON
52%
POISON
MALLINCKRODT CHEMICAL WORKS

Incompatible Storage



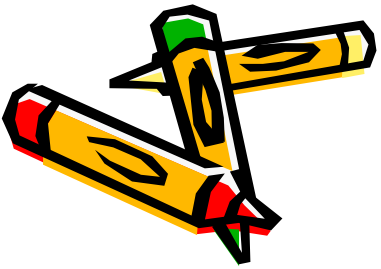

3
VLINE


3 M HCl
3 M HCl


NITRIC ACID
AR
SciMarCo
Acid/Corro

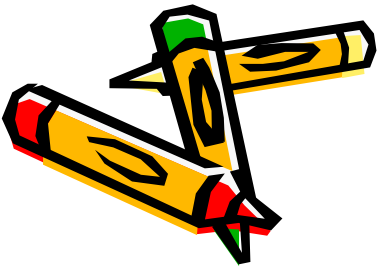

ACETIC ACID

Art Classrooms

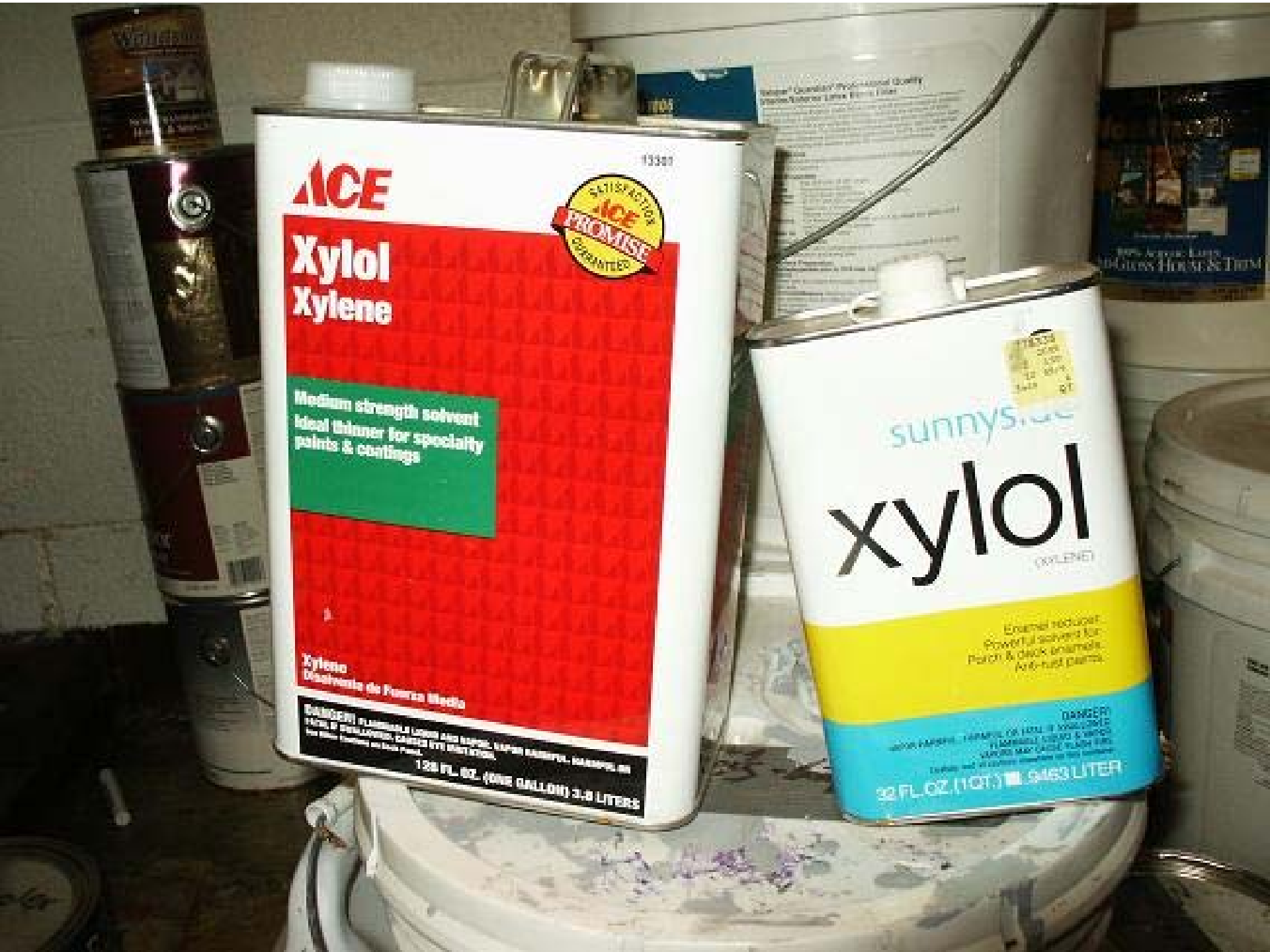



Hanes

Maintenance Chemicals

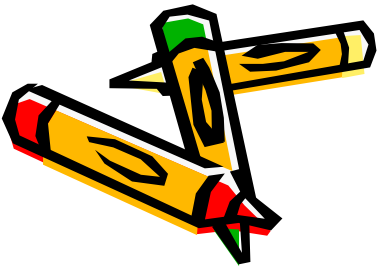



COLONIAL
PREMIUM
DUPLICATING
FLUID
COLONIAL
PREMIUM
DUPLICATING
FLUID
ONE U.S. GALLON (3.785 LITERS)

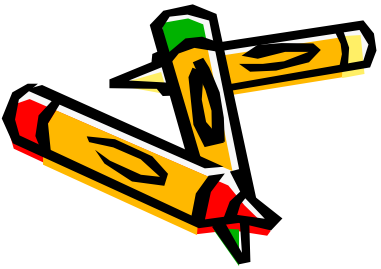

ACE
Xylol
Xylene
Medium strength solvent
Ideal thinner for specialty paints & coatings
Xylene
Disolvente de Fuerza Media
128 FL. OZ. (ONE GALLON) 3.8 LITERS
sunnys
xylol
(XYLENE)
Enamel reducer
Powerful solvent for
paint & deck enamels
Anti-rust paints
DANGER!
32 FL. OZ. (1 QT.) .9463 LITER

Note Chemicals and Condition of each area

- Cleaning chemicals closet – clean, 20 containers, not leaking, Need Inventory
- Chemistry Lab, Several shelfs 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

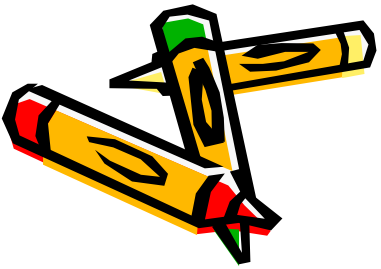


What do I do once I've decided to cleanout chemicals from my school



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,



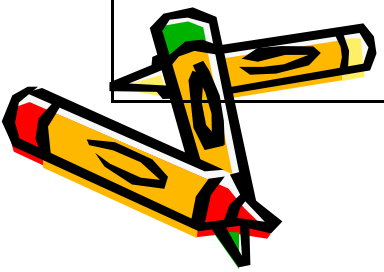
MSES

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

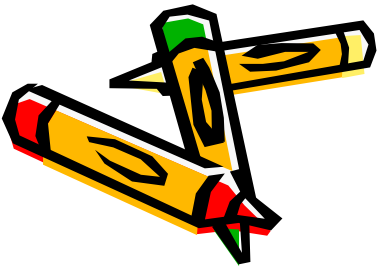
Chemical Name		Number of Containers	Container Size	Container Type	Physical State
Sulfuric Acid 60%		2	1 L	G	L
Boric Acid		1	1 Lb.	F	S
Sodium metal in oil		1	16 Oz.	G	L
Broken mercury thermometers, in baggie		1	1 Gal	G	S/L

Key

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

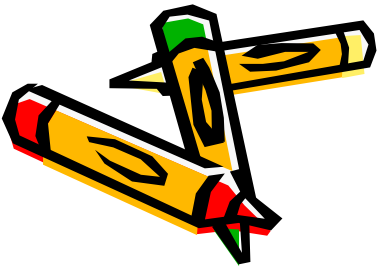
Obtain Cost Estimates for Proper disposal

- 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



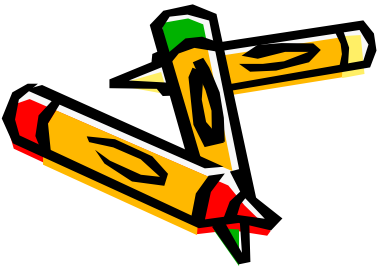
Hazardous Waste ID Number Required from EPA ?

- 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



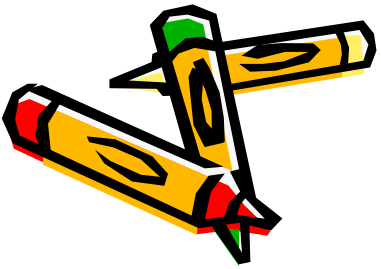
Locate Funding

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



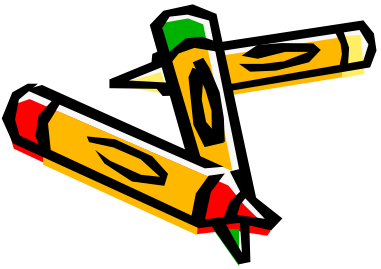
Arrange for Cleanout

- 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



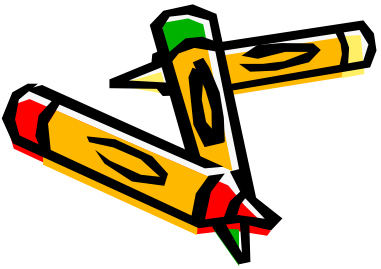
Goals for Schools

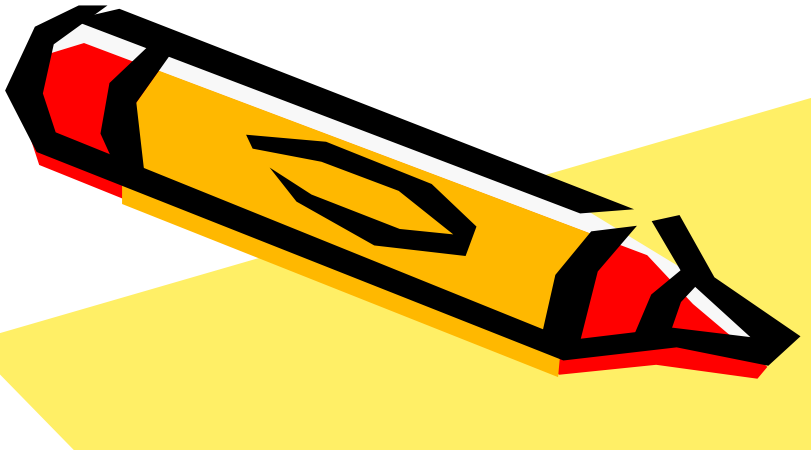
- Create a safer environment by:
  - Removing hazardous chemicals
  - Managing chemical inventories
  - Promoting pollution prevention techniques and best practices to reduce laboratory hazards



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