Hazardous Materials Consulting presents:

Identifying Hazardous Chemicals in the Classroom

by Becky Andersen & Marek Bennett

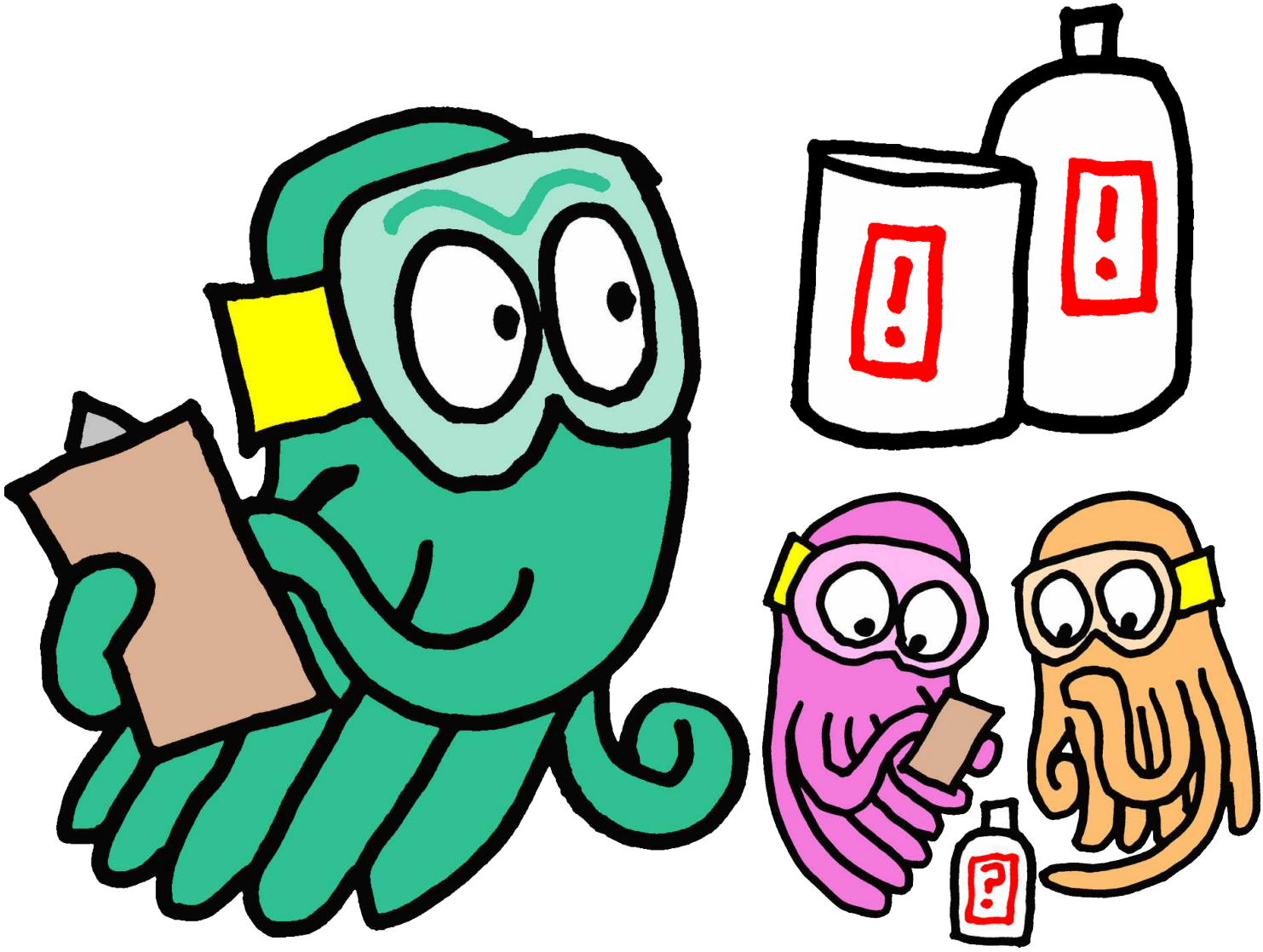
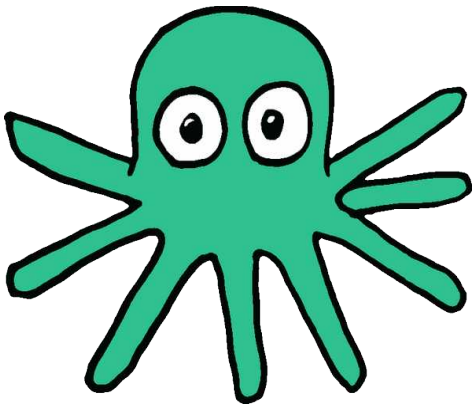


TABLE OF CONTENTS:	Page

A Note to Teachers:



YES – Teachers have A LOT to do! So many tasks, so many responsibilities... (That's why our artist, Marek, draws teachers as an octopus...)

Teachers & administrators have been overwhelmed with safety requirements for decades. We want to help.

In this book, we've gathered a series of **chemical safety resources** to simplify your risk management process...

Our goals are simple:

1. Keep Students Safe.
2. Keep Employees Safe.
3. Support excellent teaching.

Our program translates the overwhelming regulatory jargon of chemical safety into simple instructions that help you achieve a safe classroom (& better compliance with those regulations).

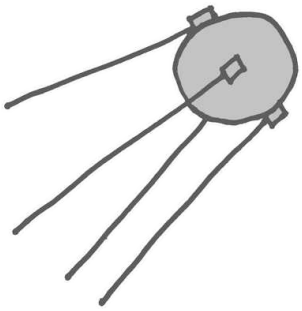
Together, we can make our schools safer!

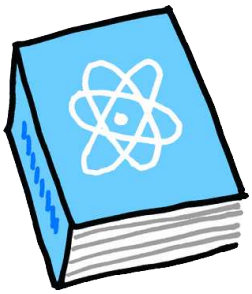
~ Becky Andersen, HMC Inc.

Preventing EMERGENCIES = SUCCESS!

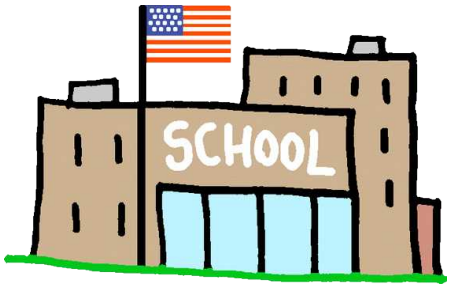
Legacy Chemicals in Schools: A Quick Story

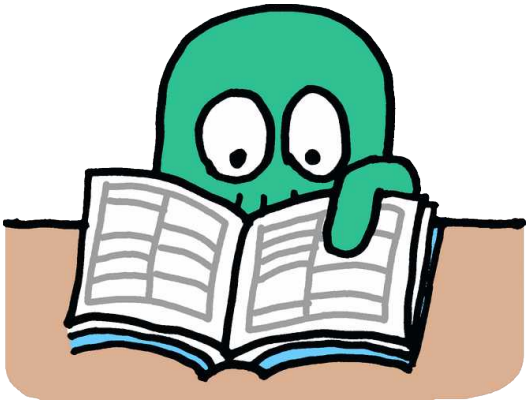
- In the late **1940s & 1950s**, the US & USSR were in a heated **"space race"**...
- The USSR launched **Sputnik**... The US was falling behind!





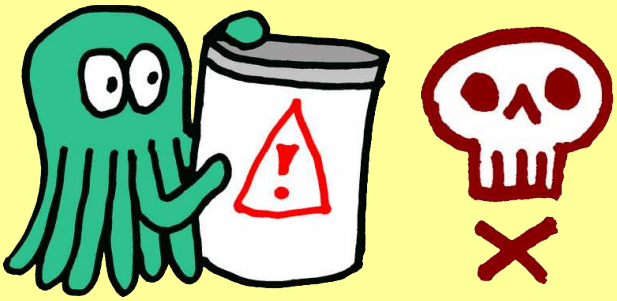
To encourage US science education programs, catalogs reportedly went out to **all US K-12 public schools & universities**....





By some accounts, teachers could order any lab chemicals they needed...

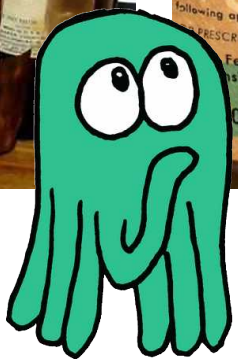
...and so they "stocked up" – sometimes on **hazardous chemicals**!



Decades later, many of these chemicals may STILL be stored in schools nationwide...

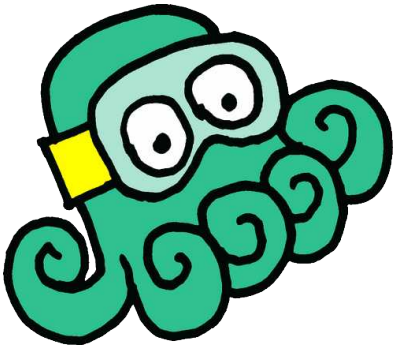
How old is old?

Paper lids & corks?
→ 1920s-1950s!



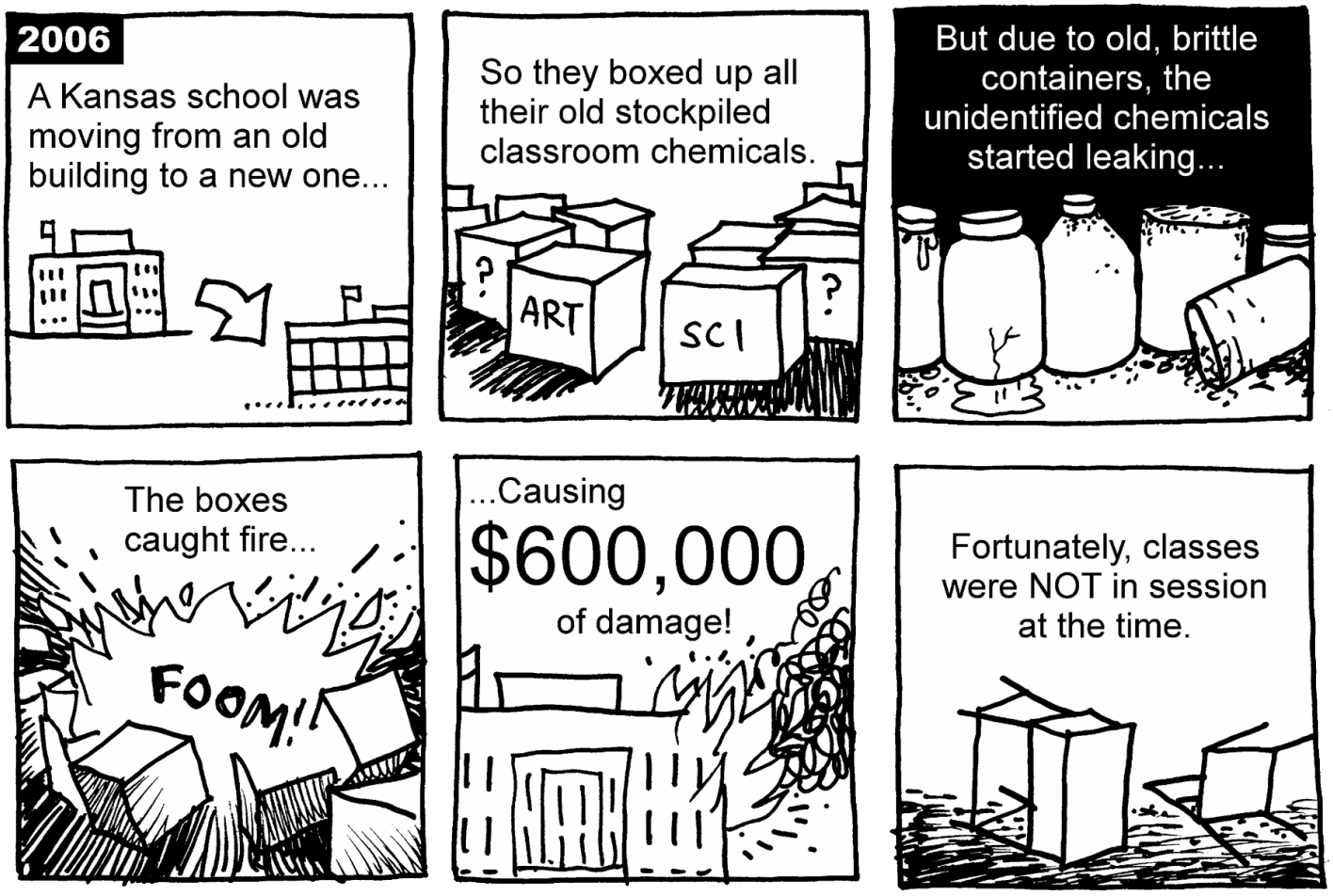
Old labels & logos
→ 1950s-1960s

Consequences for Schools:



- Unstable chemicals (such as peroxide formers) cannot be safely shipped for disposal.
- Brittle plastic & glass due to chemical reactivity (ex: hydrofluoric acid!)
- Broken bottles & leaking chemicals.
- Teachers inherit dangerous, unpredictable situations...

A Cautionary Tale (Kansas, 2006)



"REHAB THE LAB" (Iowa)

- Started in Washington State by **Dave Waddell** in the early 2000's, **Rehab the Lab** has helped remove hundreds of tons of chemicals nationally.
- In Iowa, working with Dave's guidance, **Becky Andersen** led a "Rehad The Lab" program which helped remove more than 500,000 lbs of hazardous chemicals from school labs.
- Ongoing challenges remain in schools awaiting Legacy Chemical identification and disposal.

Do YOU Have Legacy Chemicals in Your School?:

AS WE INVESTIGATE...

✔ Work in agreement with your administration.

✔ Coordinate throughout school – If you have legacy chemicals in the science department, they are likely in other areas.

✔ Replace large stocks with small quantities (if they're useful in your teaching).

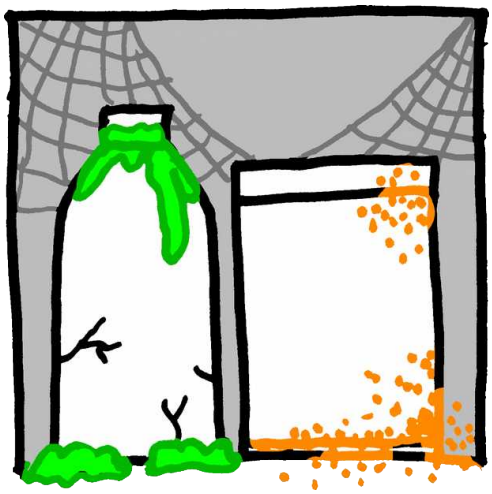
SUPPLIES YOU WILL NEED:

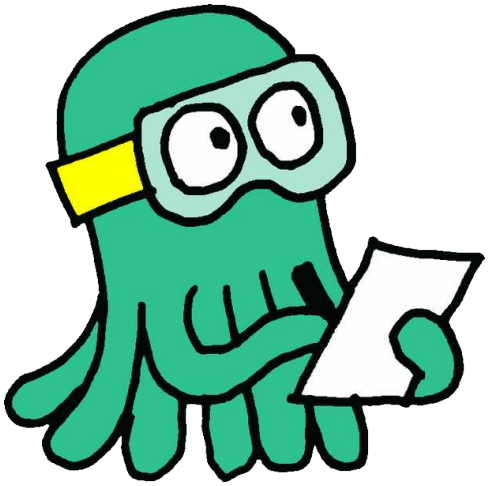
- Facility SPILL & EMERGENCY PLAN
- Fire extinguisher
- Safety shower & eyewash station
- Chemical-Resistant Apron
- Safety Glasses / Goggles
- Nitrile Gloves
- Fully stocked SPILL KIT (including caution tape & signage)
- Intrinsically safe flashlight
- Camera & phone
- Fan (for ventilation)

WHERE DO WE START?

Recognizing High Hazards:

- First, determine presence of disposal-eligible **legacy chemicals** through **VISUAL INSPECTION**.
- Evaluate your **lab processes & chemicals used** to identify waste & risk.
- **Train** all involved employees (per EPA, OSHA, DOT regulations).
- Get **disposal & stabilization quotes**.





<u>IMPORTANT:</u>
Conduct cleanup of high-risk chemicals **when students are NOT present**.

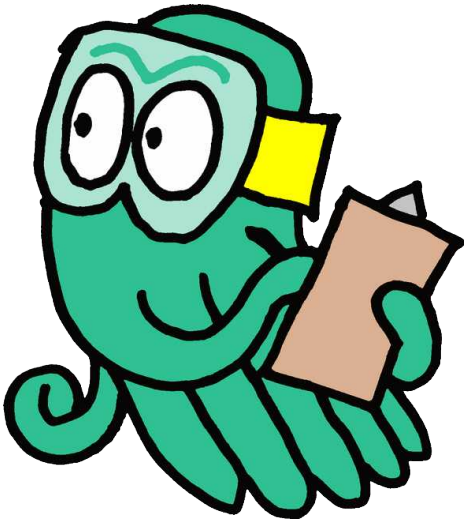
Remember R.A.M.P.*:

- **Recognize Hazards ◀**
- **Assess Risk ◀**
- Minimize Risks
- Prepare for Emergencies

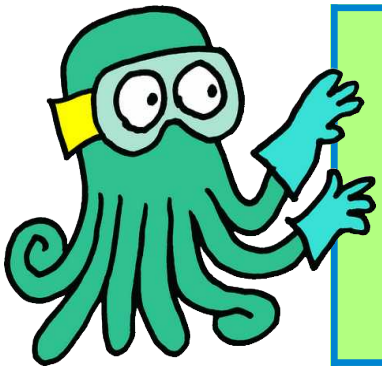
* R.A.M.P. framework courtesy of the **American Chemical Society** www.acs.org

First Steps: Visual Inspection

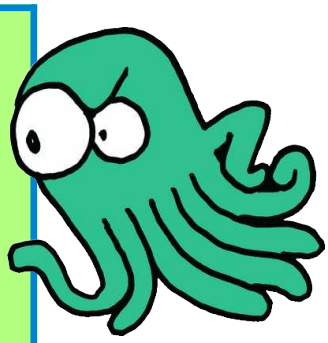
- **Work as a team** – No solo work!
- MINIMIZE EXPOSURE: Use Personal Protective Equipment.
- Start slowly, with a **review of the room** to recognize risks.
- Clean out a **staging area** of the stockroom shelves – Is there a collection of "kitchen chemicals" you can move out of the way to open up shelf space?
- **How are chemicals arranged?** Alphabetically? By chemical class? By usage?



Evaluating Chemical Stockpiles:

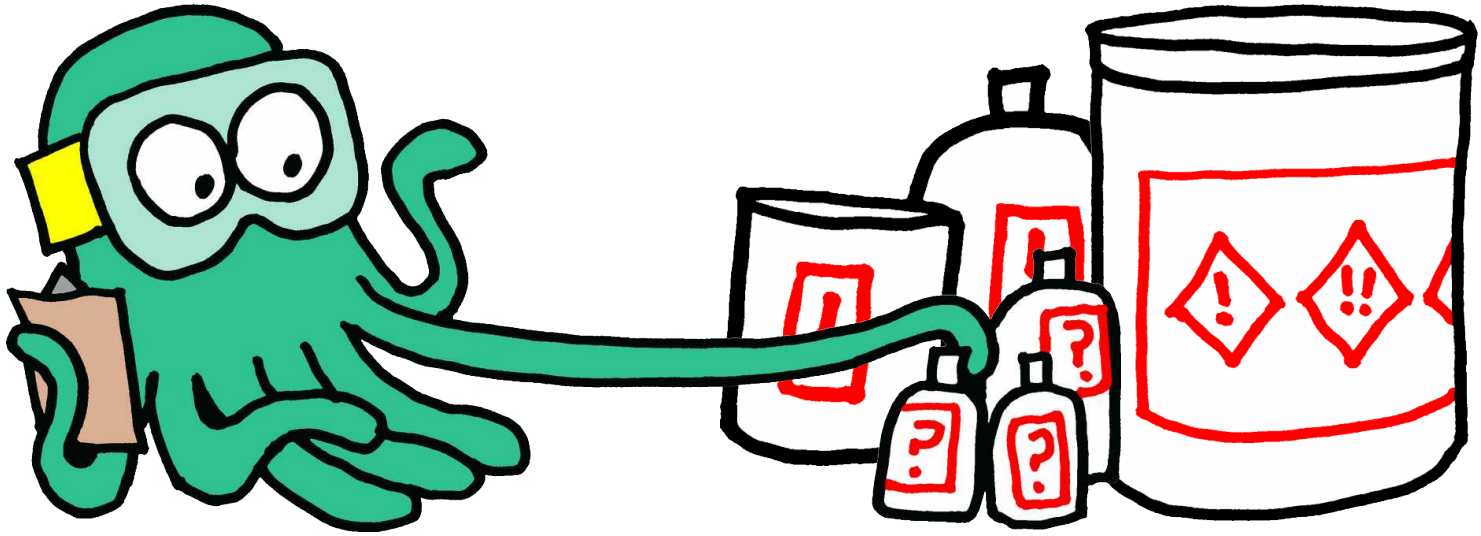


OUR FIRST GOAL: Keep teachers safe as they evaluate the presence of legacy chemicals!



- When you find legacy chemicals, use caution tape to segregate, & leave them in place.

If you don't know what it is, DON'T MOVE IT!



Eligibility for Disposal

DISPOSAL IS NECESSARY if a chemical meets **ANY ONE** of our **4 disposal criteria**:

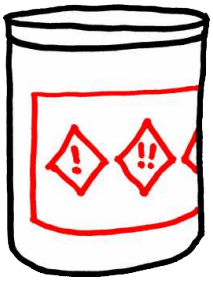
(A) High Hazard

(B) 5+ years old

(C) 5+ year supply

(D) Unstable, broken, or leaking container

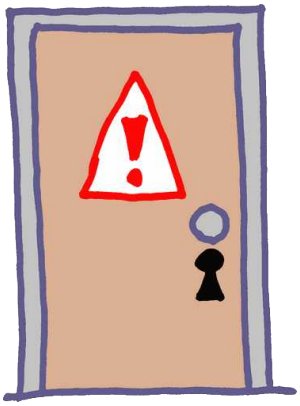
REMEMBER: Disposal is NOT an emergency.



Many of these chemicals have been quietly aging for 60+ years! IT IS NOT AN EMERGENCY if they continue to quietly grow old on a shelf a little longer....

WHAT TO DO NOW:

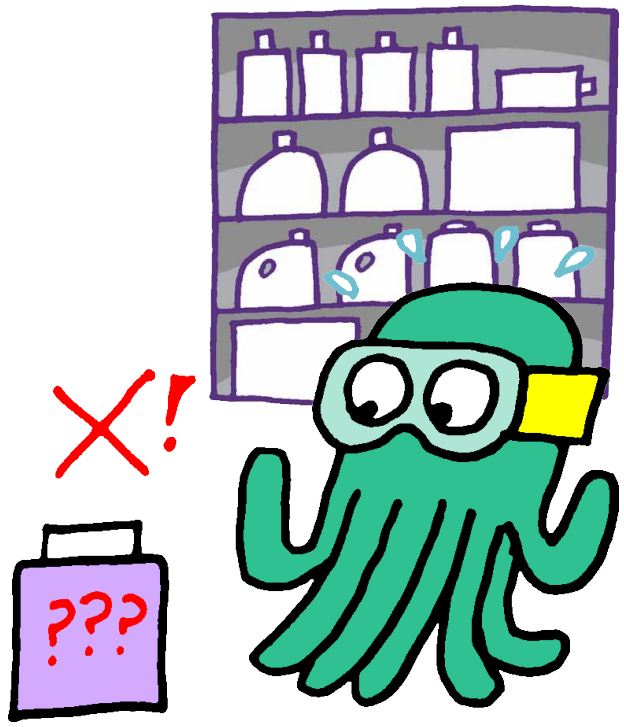
- Leave high hazards in place (for now).
- Keep the stockroom locked.
- Alert your administration.



Commonly Found HIGH HAZARDS:

Key classifications of concern include:

- **Potential Explosives:**
  - Peroxide Formers
  - Picric Acid
  - Potassium
  - Nitro-compounds
- **Water & Air Reactives:**
  - Earth Metals
  - White/Yellow Phosphorus
- **Acute Toxins**
- **Damaged Containers:**
  - Broken caps
  - Crystals
- **DEA controlled substances**
- **Radioactives:**
  - Alpha (common)
  - Beta (common)
  - Gamma (uncommon)



WHAT IS THIS STUFF?

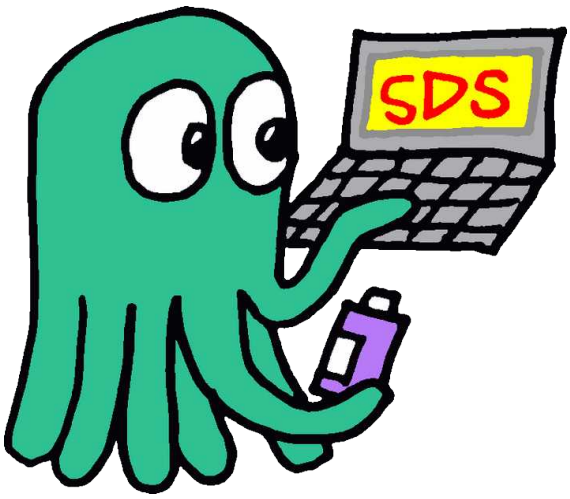
To research a suspected chemical:

- Google "Safety Data Sheet" + chemical name
- For more info, use PubChem at: www.nih.gov

IF YOU ARE NOT SURE: Don't touch it, don't move it, & ask an expert!

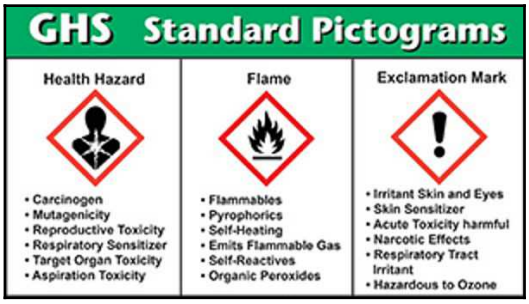
Researching Chemicals with SAFETY DATA SHEETS (SDS):

- Each SDS covers a **single chemical product** found in classroom & lab supplies.
- Standard SDS format features **16 sections** – But the 3 sections BELOW will help you determine **when risk exceeds utility:**



SECTION 2: Hazard ID

Know those standard **hazard pictograms** – They help you evaluate risk at a glance!



SECTION 3: Ingredients

= Tells you what's in a chemical product.

SECTION 8: Exposure Control & Protection

= Contains most of your **risk assessment information**! Look for **PEL** (Permissible Exposure Limit), **STEL** (Short-Term Exposure Limit), & more.

GOT LEGACY CHEMICALS?
What to Do Next:

- **DO NOT MOVE the high hazard chemicals!** Move only the chemicals you're going to KEEP.
- **Disposal of hazardous waste** can be complicated & expensive. Ask for help from your facility expert and/or experts in your state's regulations.
- **Review current use chemicals** & evaluate risks.

For more materials & guidance, contact:

Hazardous Materials CONSULTING

www.HazardousMaterialsConsulting.com

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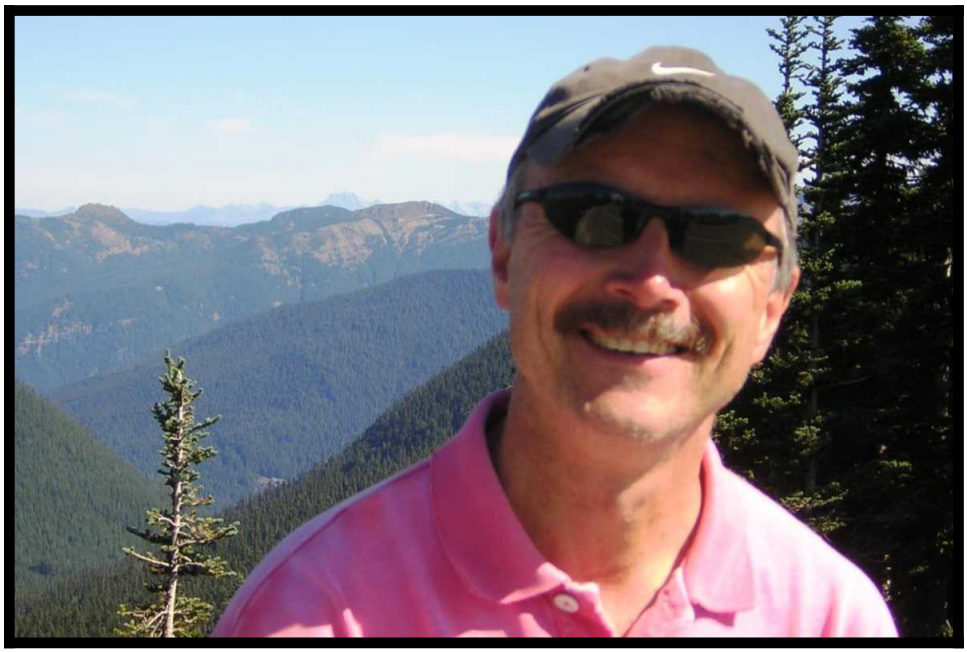
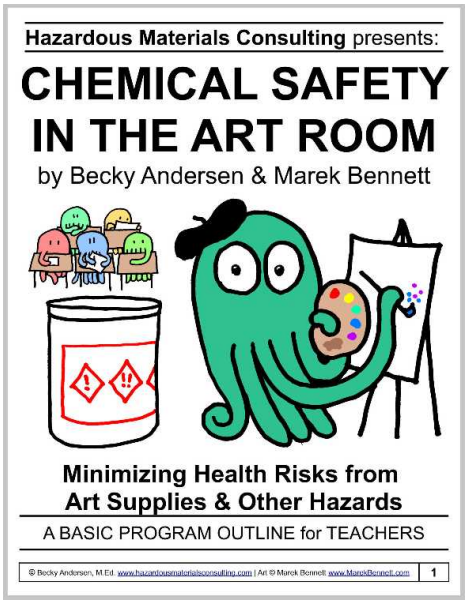
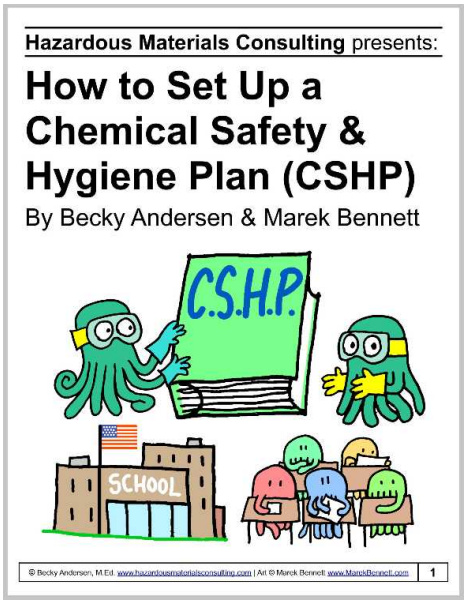
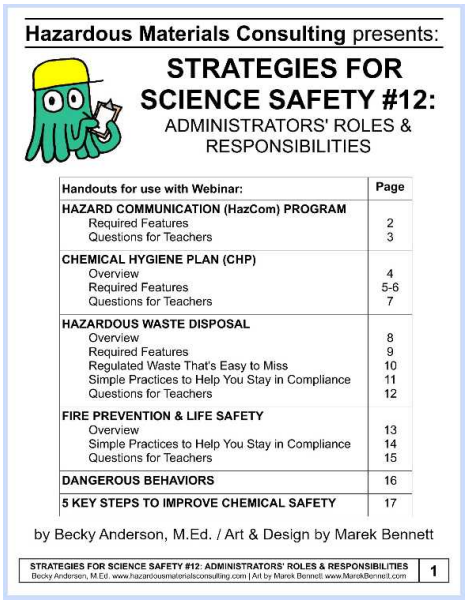


This book is dedicated to the memory of Dave Waddell, a devoted teacher, school chemical safety expert, & friend.

More in this series:







Identifying Hazardous Chemicals in the Classroom

The Science of Safety:

Small incidents lead to large incidents lead to major accidents.

We all have the same goals:

- Keep students safe.
- Keep employees safe.
- Support excellent teaching.

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