

# MT Green School ABCs

School Chemical Cleanouts

# Green School Series

- Green Cleaning and School Environmental Assessment Tools (March 11<sup>th</sup>)
  - Basic building blocks of a green school program, all with the intention of creating a healthier indoor air quality
- School Chemical Clean-outs (March 25<sup>th</sup>)
  - Process of conducting an inventory of hazardous chemicals within the school (science classrooms, custodial storage areas etc.) and finding a way to get them out of there.
- Healthy Landcare (April 8<sup>th</sup> )
  - Development of Integrated Pest Management Plans and the realities of moving towards a less toxic land care system
- Green Renovation and Maintenance (April 22<sup>nd</sup> )
  - Summer projects- painting, floor and tile sealing, lighting upgrades, carpet replacement, etc.
  - Asbestos- do you have it? Now what?

# Peaks to Prairies – who are we?

- A Pollution Prevention Information Center for EPA Region 8 (MT, WY, ND, SD, UT, CO)
  - Pollution prevention - the elimination or reduction of the generation of waste at the source rather than controlling pollution through treatment or disposal
- One of 8 EPA funded Regional Centers whose mission is to distribute tools and information to businesses, industries, technical assistance providers, state and tribal government agencies for the purpose of aiding in the practice of pollution prevention
- A program under MSU's Department of Extension – Housing and Environmental Health- Bozeman

# What we will cover

- School Chemical Cleanouts
  - How do you know if it is necessary?
  - Then what?
  - How do we pay for it and who can do it?
- Montana Success Story
- How to avoid the problem in the future....Green Science?

# School Chemical Cleanouts

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Region 8

Bonnie Rouse – Montana Department of Environmental  
Quality

# Green Science- an introduction

Myla Kelly- Peaks to Prairies Coordinator

# Alternatives to Traditional Science Labs

- **Microscale Chemistry**- utilizing small quantities of chemicals to limit storage needs and waste without compromising the quality of the education.
- **Green Chemistry**- utilizing chemical products and processes that reduce or eliminate the use and generation of hazardous substances.

# Microscale Chemistry

- Microscale Chemistry is performed by using:
  - Drastically reduced amounts of chemicals
  - Safe and easy manipulative techniques
  - Miniature labware and high quality skills
- Benefits of small-scale chemistry:
  - Saves prep and clean-up time, *reduces waste at the source*, improves safety, *lower costs for chemical substances and equipment*, requires smaller storage areas, *requires reduced reliance on intensive ventilation systems*, and involves shorter reaction times
- Comprehensive experiment designs for all basic (and advanced) chemistry experiments including: physical properties, distillation, reflux, filtration, purification, synthesis, analytical principals, and electrochemistry

# Green Chemistry – 12 Basic Principals

1. Prevent Pollution
2. Avoid Chemical Derivatives
3. Design for Degradation
4. Design Less Hazardous Chemical Syntheses
5. Design Safer Chemicals and Products
6. Increase Energy Efficiency
7. Maximize Atom Economy
8. Minimize the Potential for Accidents
9. Prevent Waste
10. Use Catalysts
11. Use Renewable Feedstocks
12. Use Safer Solvents/Reaction Conditions

# Resources

- National Microscale Chemistry Center- established in 1993 to promote the use of microscale chemistry as a means of eliminating toxic waste at the source. Conducts workshops for all chemistry levels- from Elementary school to O-chem

[www.microscale.org](http://www.microscale.org)

- American Chemical Society Green Chemistry Institute- comprehensive listing of experiments by grade level

[www.acs.org/greenchemistry](http://www.acs.org/greenchemistry)

# Incentives

Eat Right Montana – Mini Grant Program (12 grants at \$500 each)- to support schools, childcare or senior facilities that want to support **GOING GREEN** activities. (March 30<sup>th</sup> deadline)

[www.eatrightmontana.org](http://www.eatrightmontana.org)

- EPA's Children's Environmental Health Excellence Recognition Program (yearly)
- Annual Green Cleaning Award for Schools and Universities
- Missoula – Aug 09 – R8 Children's Environmental Health Summit – focus is environmental exposures in schools and daycares

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