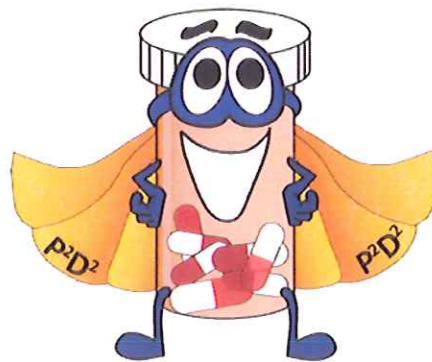


Environmental Science

P²D²



Pontiac Prescription Drug Disposal:
A Cooperative Program between High School
Students, Local Officials, and Pharmacies
www.p2d2program.org

Lesson Plan

Environmental Science Lesson—P²D²

Creating an Effective Presentation to Inform the Public

Objectives

Students will:

1. Understand the effects of unused pharmaceuticals on the environment, citizens, and issues surrounding people ingesting medicine that was not meant for them.
2. Learn the proper methods of pharmaceutical disposal.
3. Serve as an important agent for change to help protect and improve the quality of our waters.
4. Learn how to defend their research findings to an audience.
5. Learn how to make PowerPoint presentations, posters, and billboards or other large displays that will deliver messages to help people understand how medicines can be harmful to people, pets, and the environment.

Based on successful attainment of these objectives, the P²D² Program will:

Bring awareness to every community of the potential dangers of improper disposal of pharmaceuticals.

Educate citizens in reducing and eliminating pharmaceuticals from entering our environment.

Initiate positive working relationships between schools, pharmacies, communities, local government, and city officials.

Enable communities to improve their physical environments and quality of life through environmental education.

Reduce consumer waste in the environment.

Assess quantity of household pharmaceutical waste disposed of in an area.

Engage all involved in the production, distribution, sales and consumption of medicines in Environmentally-preferable practices.

Foster community health by providing an opportunity to work together towards a common goal.

Illinois Learning Standards

The standards associated with this lesson are extensive and may be found in this publication in the “Alignment to State and National Science Standards” section.

Procedure

Day 1 – Establish four student teams. Direct the students to research problems associated with pharmaceuticals in the water. Have the students use computers, books, magazines, and leading researchers to gather any and all information about the issues related to pharmaceuticals in the water.

Day 2 – Have the students continue investigating the problem and have them keep their records in a binder. The students will also create a list of pharmacies in the area.

Day 3 - Instruct students to research current accepted disposal methods of pharmaceuticals, as they continue investigating the problem, and document findings in a binder.

Day 4 – Students will continue to research the current accepted disposal methods of pharmaceuticals. Direct the students to contact all area pharmacists and local officials and ask them if they would be willing to collaborate in determining possible solutions/prevention methods of improper disposal of pharmaceuticals in the environment. Send out formal invitations to participate in this community stewardship project.

Days 5-7 – Instruct the students on best practices for creating effective PowerPoint presentations. (This instruction can take more than one day if needed.) Have the students develop their information into a PowerPoint presentation. (Depending on the student’s abilities, this can take several school days to complete.)

Day 8 - Students will give formal presentations of their research to area pharmacists and local officials that inform them of the best practices for disposal methods available in your area. (Refer to P²D² Guidelines for Standard Operating Procedures regarding Collection of Unused/Expired Meds—Role of the Pharmacy.)

Day 9-10 – Students will develop an informational brochure/poster to display at local businesses. This product should include contact information for the public to learn about how and where they can bring their unwanted medicine. Participating sponsors should be acknowledged. In addition, students will create a flyer with this information that can be easily stapled to small paper bags for public distribution.

Day 11 – Students will contact local media outlets (print and broadcast) to inform them of this program and its benefits. In addition, students can create informational videos that will be linked on the P²D² website and on YouTube™ for broader dissemination. (Sample descriptions of selected videos posted on YouTube can be found in the section, “Sample Student Stewardship Projects to Initiate Action.”)

Day 12 – Students will develop a billboard to put up near or on the interstate, or other high-traffic area. (Ask a billboard company if they will donate a billboard; P²D² teachers have found they will say yes or produce one at minimal cost.)

Day 13 – Share this project with other schools, corporations, etc. and share your program/curriculum unit(s). Identify community medicine collection events or other local festivals and events where students can distribute information to educate the public about safe disposal practices, for example Pontiac Township High School students participated in the P²D² Green Day in partnership with St. Joseph Medical Center (see promotional flyer following this lesson plan).

Developed By: Paul Ritter, Science Department, Pontiac Township High School

Information for Student Presentations to Pharmacists: P²D² Guidelines for Standard Operating Procedure for Pharmacists Regarding Collection of Unused/Expired Meds

Role of the Pharmacy

- Individuals take their unused and unwanted prescription and non-prescription drugs to participating pharmacies.
- Pharmacists take the pharmaceuticals and place them into secure bins. Please note that only licensed pharmacists and assistants handle the returned pharmaceuticals.
- When the bins fill up, pharmacists send them off to be incinerated.
- The company that incinerates the pharmaceuticals creates energy that is used to power homes and businesses.

1. Have a three-vial box system in place
 - A. The first box is for pills.
 - Take the tablets or capsules out of the vials or container.
 - Pour into a lined vial box.
 - B. The second box is for creams and ointments.
 - Most liquids are stable with others.
 - Pour out similar products into one bottle, making it full.
 - Cough meds can be added together; over-the-counter products like Pepto Bismol can be combined.
 - Inhalers like Nasonex and Flonase: Take off the caps or mouthpiece to free up space.
 - This should be in a lined vial box also.
 - C. The third box is for blister packs.
 - Take the product out of the box.
 - Do not put in PPI or other papers.
 - This should be in a vial box.
 - D. You can also have a fourth and fifth smaller box; one for mercury thermometers and one for aerosol products.
 - Keep these separate from the rest.
 - With any inhaler, remove the mouthpiece to free up space.
2. You can drop the boxes off to the designated area at the collection site for proper placement in the EPA-provided drums.

Returned medication is separated at the pharmacy counter into four basic classifications for disposal. Boxes and containers are removed and can be added to normal recycling.



1. Pills and Tablets



2. Liquids, Creams, and Ointments



3. Blister packs



4. Pressurized Inhalers

Rubric: Creating an Effective P²D² Power Point Presentation (Days 5-7)

Maximum Points: 50

Student Name: _____

CATEGORY	5	3	1	0
6-7 slides	6-7 slides	4-5 slides	2-3 slides	under 2 slides
Color and Font	Font is readable and color on all pages.	Font is readable and color on all pages on at least 5 pages.	Font is readable and color on all pages on at least 3 pages.	Font is readable and color on all pages under 3 pages.
Creativity and Animation	Slides are unique in creativity and show animation.	Slides are unique in creativity and show animation on at least 5 pages.	Slides are unique in creativity and show animation on at least 3 pages.	Slides are unique in creativity and show animation under 3 pages.
Reasons for P ² D ²	More than five reasons.	Five reasons.	Three reasons.	Under three reasons.
Pictures of Pharmaceuticals	More than five pictures.	Five pictures.	Three pictures.	Under three pictures.
Participation	Participated all days.	Participated four out of five days.	Participated three out of five days.	Participated under three days.
Time	Finished on time.	Took one extra day.	Took two extra days.	Took more than two extra days.
Research	More than five sources.	At least five sources.	At least three sources.	Under three sources.
Organization	More than five slides are organized and have no grammar errors.	At least five slides are organized and have under three errors.	At least three slides are organized and have under five errors.	under three slides are organized and have more than five errors.
Effort	Effort out of everyone all five days.	Effort out of everyone for three days.	Effort out of everyone for one day.	No effort was shown.

Rubric: Creating an Effective P²D² Poster Project (Days 9-10)

Maximum Points: 50

Student Name: _____

CATEGORY	5	3	1	0
Quote	There is a quote about pharmaceuticals with author.	There is a quote about pharmaceuticals with no author.	There is no quote about pharmaceuticals.	No quote
Color	Color is on entire poster.	Color is on 3/4 of poster.	Color is on 1/2 of poster.	No color
Picture	There is a picture of a pharmaceutical.	N/A	N/A	No picture
Creativity	Poster is unique and creative in design.	Poster shows creativity but not unique.	Poster shows little creativity and not unique.	No creativity
Sponsors	All sponsors are listed.	More than 1 sponsor is missing.	More than 2 sponsors are missing.	No sponsors are listed.
Acknowledgment of the high school ecology class	Pontiac Township High School Ecology class is on poster.	N/A	N/A	Pontiac Township High School Ecology class is not on poster.
Student group identified	Student names are acknowledged.	N/A	N/A	No Name
P ² D ² Program Acknowledgment	Prescription Pill and Drug Disposal Program is on the poster.	N/A	N/A	Prescription Pill and Drug Disposal Program is not on the poster.
Use of attention-getter to effectively deliver the message	Catch phrase is on the poster.	N/A	N/A	No Catch phrase is on the poster.
Grammar	All Grammar is correct.	One Grammatical Error	Two Grammatical Errors	More than two Grammatical Errors