

Lesson 6:

A Look Back - Historical Pharmaceuticals



9-12 Grade



45 Minutes



Subjects:

History, Biochemistry



Setting:

Classroom



Pre-Homework:

Review lesson 2: What happens to PPCPs?

INTRODUCTION

What did people do for medicinal needs and personal care products at the turn of the twentieth century? Thanks to archaeologists at the Illinois State Archaeology Survey and other sources, many of those questions have been answered. There are some interesting and sometimes scary treatments for common ailments that are easily treated today.

STUDENT OBJECTIVES

1. Conduct a serial dilution to prepare solutions of a chemical over a range of concentrations.
2. Conduct a dose/response experiment with the solutions prepared in the serial dilution to determine the chemical's toxicity to lettuce or radish seeds.
3. Work collaboratively to conduct the experiment, analyze data, and interpret results. Document their work by writing a lab report.

DAILY ASSESSMENT

Students should be able to compare and contrast the structure of excrement disposal systems in the 1800s and today and how those systems are used. They should be able to describe possible life scenarios for the items found in the privies. They should be able to describe the differences in chemicals used to treat diseases in the 1800s and the problems that exist with using those chemicals.



Materials:

- Internet Access
- Copies of pharmaceutical advertisements cut, and possibly laminated
- Medicine bottles or boxes for current pharmaceuticals used to treat the same illnesses that are advertised on the worksheet. (Compare and contrast)
- Copies of the worksheets.

DSRP Vocabulary:

- ▶ Alchemy
- ▶ Apothecary
- ▶ Cure-all
- ▶ Privy (noun)

STATE AND NATIONAL STANDARDS

COMMON CORE

Literacy: RST.11-12.7
RST.11-12.8
RST.11-12.9

Math: MP.2
MP.4

NAAEE GUIDELINES

3.1.A
3.1.B
3.1.C
3.1.D
3.2.D
4.A

NGSS

HS-ETS1-1
HS-ETS1-3

The Take-Away

Outdoor privies provide a look into the history of people of the 1800s. Pharmaceuticals of the past had very little regulation

All instructions that begin with an * are found on the Illinois-Indiana Sea Grant Resource or YouTube Page.

Conventional Classroom Procedure:

1. *The **night before**, have students review the lesson on wastewater treatment (as a frame of reference). Then have students read the Student Background Reading and answer the questions associated with the reading. They can also check out the interview with Dr. Dappert on the Illinois Indiana Sea Grant Education YouTube Channel.
2. In class, give students one of the advertisements provided on the teacher sheet for Cure-alls and Quackery and have them answer questions associated with those advertisements. Discuss how cure-alls and pharmaceuticals were advertised and used in the 1800s and compare those uses to what we now know about those ingredients. Also discuss how much information was and was not provided to the purchasers of pharmaceuticals. Then discuss the history of product regulation and how products are regulated today. Weigh the benefits and challenges with today's regulations. (See reference in the resource section)
3. Place students in groups, and have them complete the *What's in that Privy?* worksheet. Discuss based on the questions posed on the page.

Flipped Classroom Procedure:

1. The **night before**, have students review the wastewater treatment lesson (as a frame of reference). Then have students read the Student Background Reading and answer questions associated with the reading. Also, give students one of the advertisements provided on the teacher sheet for Cure-alls and Quackery and have them answer questions associated with those advertisements. They can also check out our interview with Dr. Clare Dappert on the Illinois-Indiana Sea Grant YouTube Education Channel.
2. In class, discuss how cure-alls and pharmaceuticals were advertised and used in the 1800s and compare those uses to what we know about those ingredients. Also discuss how much information was or was not given to the purchasers of pharmaceuticals. Then discuss the history of regulation of these products and how products are regulated today. Weigh the benefits and challenges with today's regulations. (See reference in the resource section.)
3. Place students in groups, and have them complete the *What's in that Privy?* worksheet. Discuss based on the questions posed on the page.
4. If time allows, have students choose one ailment and create a comparison sheet (or poster) for treatments in the 1800s and today.

Resources:

9 Terrifying Medical Treatments from 1900 and Their Safer Modern Versions

<http://mentalfloss.com/article/57983/9-terrifying-medical-treatments-1900-and-their-safer-modern-versions>

How FDA Evaluates Regulated Products: Drugs

<http://www.fda.gov/AboutFDA/Transparency/Basics/ucm269834.htm>

Medicine in the 20th century

<http://www.britannica.com/EBchecked/topic/372460/history-of-medicine/35667/Medicine-in-the-20th-century>

Museum of the Royal Pharmaceutical Society: *How did people treat illness in the early 20th century?*

<https://www.rpharms.com/museum-pdfs/pharmacy-information-and-enquiry-sheets.pdf>

Privy digging http://en.wikipedia.org/wiki/Privy_digging

Welcome to the David Davis Mansion <http://daviddavismansion.org/>

Extensions:

- Create a presentation comparing and contrasting historical medicinal methods with modern day medicine with regards to recommendations for improved health.
- Create a mock privy dig site with artifacts that can be found in them as a way to show how outhouses were used as trash receptacles.
- Create a presentation on the history of pharmaceutical regulations.

Student Background Reading

The following information and pictures were provided by Dr. Clare Dappert, historical archaeologist from the Illinois State Archaeological Survey (<http://www.isas.illinois.edu/staff/cdappert.shtml>). Dr. Dappert, and her colleagues have been investigating a site in East St. Louis that was discovered when the Illinois Department of Transportation wanted to build a bridge relocating Interstate 70 [http://www.academia.edu/1804719/The New Mississippi River Bridge East St Louis AD 1000-1200](http://www.academia.edu/1804719/The_New_Mississippi_River_Bridge_East_St_Louis_AD_1000-1200).

Around the turn of the 20th century, a massive range of proprietary and patent medicines were marketed to 'cure' a wide range of ailments from dropsy to consumption, headaches, and indigestion. Due to a lack of drug regulation, anything could be bottled, advertised, and sold as a medicine. Proprietary medicines were available without a prescription. While some remedies may have worked, many proprietary medicines provided no relief, except perhaps psychological. Others contained addictive and dangerous ingredients such as cocaine and opium, both of which were addictive, which, of course, could lead to increased sales. Almost all contained alcohol as a preservative. Though the individual medicines make claims to cure some primary ailment, in some cases a slew more, there is a possibility that the people of the time could have been using multiple medicines to treat a single illness.

The dubious claims of proprietary medicines began to be revealed in 1905, when Samuel Hopkins Adams published a series of 10 articles entitled "The Great American Fraud." Adams condemned patent medicine manufactures for their deceitful practices in labeling and the use of addictive drugs. Federal investigations subsequently intensified, resulting in the passing of the Pure Food and Drug Act of 1906. This law was one of several succeeding ones that provided improved protection against bad food and drugs. As a result of these reforms, drug companies were required to list the amount of alcohol and dangerous drugs in the products.

Despite the Act of 1906, products were still advertised as 'cures'. In 1911 the American Medical Association published its findings about various proprietary medicines in a book entitled *Nostrums and Quackery*. The revelations in this book led to the passing of the Sherley Amendment in 1912, which prohibited any false and fraudulent curative or therapeutic claim on labels. In other words, companies were not allowed to use the word 'cure' unless they could prove that their product provided a cure. Subsequent laws in 1951, 1962, and 2004 added further protection for consumers, though even today there are still useless products on the market.

Questions on Background Reading

1. What surprised you most about the information Dr. Dappert shared?
2. Are there products that you have seen in the store that you suspect are not true to their claims?
3. Do you think there should be tighter restrictions on products and their claims? Why or why not?
4. Why do you think there are still companies that make false claims about what their product(s) do?

Name _____ Block/Period _____

What’s in that Privy?

A privy, when used as a noun, is synonymous with the word “outhouse.” Privies were commonly used before indoor plumbing was available. According to the Illinois State Archaeological Survey, privies were not only a way to dispose of human waste, but also used as a trash receptacle. For instance, if a woman wanted a new set of dishes, she might dispose of her current dishware by dropping them into the privy. Archaeologists and antique enthusiasts have excavated old privy sites to find evidence of socio-economic status, health, and habits of the time period.



So, it’s your turn to be a budding archaeologist.

Below is a list of items found in five privies. What can you say about the people who used that privy based on what is listed? Create a story about the owners based on the items found.

Privy A	Privy B	Privy C	Privy D	Privy E
Ceramic bird feeder	Rubber doll	Porcelain dolls with moving eyes	Embalming fluid	China dishes
Glass Tear Catcher	Breast pump	Glass crucifix	Chemistry set	Hypodermic needles
Glass cosmetic jars	Dog skeletons	Gargoyle figurine	Leather dog collar	Medicine bottles (n=94)
Cigar jar	Rubber syringes	Shot glass	Toy tea pot/cup	Perfume bottles
Brass flower brooch	Chamber pot	Decorated glass goblets	Glass soda bottles	Whiskey bottles
Decorated serve ware	Plain serve ware	Glass wine bottle	Bulk perfume bottles	Jars of ointment/cream

- Compare and contrast indoor toilet systems and wastewater treatment systems of today to those of outdoor, primitive privies of the 1800s.
- Discuss where leftover medications (if discarded before being fully consumed) would possibly leach to if not properly disposed of or if the glass container broke.
- Discuss the story your group created for the owners of each privy compared to the story archaeologists have about them. Any surprises? How accurate were you? Does privy excavating sound like an activity you would enjoy? Why or why not?

Teacher Page:

After students have made conclusions, have them read their conclusions aloud. Once everyone has given their assessments, hand them the information about the privies to see how close their predictions were to the real story.

Background to What's in That Privy? (Information provided by Dr. Clare Dappert and Mrs. Eve Hargrave, Illinois State Archaeology Survey)

Privy A: Lizzie Benner owned 819 Bowman Ave. for almost 30 years. Lizzie's husband John died during the 1890s, leaving her to care for their young daughter Victoria. Lizzie occasionally took in boarders and rented out part of her property.

A birdfeeder was recovered from a privy at 819 Bowman Ave. This birdfeeder was a Redware ceramic with a lead-glazed interior. It had a small handle on the rim, which was there to attach the feeder to a birdcage. The birdfeeder was small, and likely appropriate for a bird such as a canary or sparrow. The bird may have provided an aesthetically pleasing addition to the home, while also potentially providing companionship. The bird probably belonged to Lizzie Benner and her daughter, although it is possible that one of the boarders bought it with them. The birdfeeder might have been discarded after the bird died.

One memento recovered at 819 Bowman Ave. is what researchers believe to be a tear catcher. These small bottles would be used in Victorian mourning rituals to quantify the importance of the deceased. Once filled, the containers were sealed with a special stopper that allowed the tears to evaporate. The completion of the evaporation process signified an end of the mourning period. This tear catcher was recovered in a privy, dating to around 1905. Lizzie likely filled the heavily decorated vial after John died, and then carried it around with her. Even though it appears to be broken at one end, the tear catcher was likely accidentally discarded. It's likely that the tear catcher fell into the privy without Lizzie noticing. Lizzie never remarried after her husband died.

A brass brooch depicting a small flower probably belonged to either Lizzie or Victoria. The brooch might have been partially functional in addition to being decorative; it could have been used to keep cloaks or scarves secured. Jewelry wasn't something that everyone could afford, but Lizzie's inheritance and money from renters would have made this purchase easier.

Lizzie set her table with decorated glass and ceramic dishes. She had several different types of serving ware, allowing her to set her table formally during holidays or when guests were visiting.

Privy B: 823/825 St. Clair Ave. was a boarding house from 1890 to at least 1920. It operated under a variety of names throughout the years, but was consistently providing housing to low- income single male laborers.

A rubber doll was found at 823/825 St. Clair Ave., though there is no record of children ever living in the home. It was likely around seven inches long. Such rubber dolls marketed around the turn of the century were described in the Sears Roebuck catalog as “Musical Gray Rubber Dolls,” perhaps playing a short tune or a “Ma-ma” sound when squeezed. They were advertised as, “Something the children can’t break.” The boarding house also had nine porcelain or bisque dolls, represented by legs, broken heads, and arms. These parts would have been attached to a soft, fabric body. These dolls were soft, durable, and rather easily fixed if a part was broken. These dolls show that children were regular visitors at the boarding house.

A breast pump was found in a privy dating to 1905 in the rear of 823 St Clair Ave. While there were four women living there during 1893, typically the occupants were all men until 1905 when three of the male boarders were listed as living with their wives. Potentially, one of these women was using the breast pump, although, again, there are no children listed as living there. It’s possible that one of these women was working outside the home to supplement her husband’s income, and pumped her breast milk to allow one of the other two women to take care of her child. Or it’s possible that the child could not nurse, and the mother did not want to supplement their diet with animal milk or formula.

The breast pump recovered looks rather similar to the English Breast Pump advertised in the 1897 Sears Roebuck catalog. They were relatively cheap, at 18 cents apiece or a dozen for \$1.75. In comparison, even the cheapest and smallest bottle of infant formula from the same year was 20 cents apiece. Formula would have been a recurring cost; a breast pump could have been more affordable.

Two dogs were found in the privies at 823/825 St. Clair Ave. One was a large adult dog, and the other was a young, small dog. None of the remains display butchery marks or evidence of pathology or trauma. The dogs likely represent household animals or pets, discarded in the privy after they died. They might have belonged to specific boarders, or they could have been owned and cared for by the residents as a group.

Eight hard rubber syringes were recovered from the boarding house at 823 N. Second St., in a privy dating to around 1893. Attempting to maintain cleanliness and good health at the end of the 19th century was often a very difficult and dangerous task, especially when dealing with genital uncleanliness and disease. To maintain cleanliness, both men and women used rubber syringes to treat infections and occasionally to clean discharges from orifices. At this time, the boarding house was still primarily male, although there were four female residents. Both penile and vaginal syringes were recovered, indicating that at least two residents required their use. It’s possible that two residents used the syringes regularly, although it’s more likely that multiple residents used them. Hard rubber syringes were available in multiple sizes and styles, for both men and women, and adults and infants.

The boarding house used very plain, thick ceramic serve ware. The cost of boarding would have included food, which was served at one time to all the residents. By using this sturdy serve ware, the boarding house probably spent less on replacing them.

The boarding house manager was responsible for providing toilet accommodations. While residents had a privy at the back of the lot, chamber pots were used when it was too cold or dark to go outside, or if the resident was too ill or tired to go outside. The boarding house manager would have been responsible for cleaning out the chamber pots into the privy every day.

Privy C: Six bisque ceramic doll heads were recovered from a privy at 131 St. Clair Ave. The dolls are in various states of repair, ranging from almost entirely intact, to being essentially smashed. Uniquely, a pair of glass doll eyes were recovered with them. While the doll eyes were made of thin, fragile glass, this pair was recovered unharmed. Glass eyes such as these were moveable and appeared slightly more lifelike. Dolls with moveable eyes were more expensive and less durable than dolls with fixed parts. The first young children recorded as living at or near 131 St. Clair show up in the 1900 census, although it's possible that they were there earlier. The Walker children were the most probable owners of these dolls. In 1900 the Walker family had four children: Frank, George, Alice Maude, and Mary. Alice was three in 1900, and Mary was five months old. If the Walker children owned these dolls, they most likely belonged to Alice. While it's possible that Alice was merely careless with her toys, it's also possible that she broke them in a temper tantrum, possibly even in reaction to her little sister being born.

Other possible owners of the dolls at 131 St. Clair include the Brearton sisters. While all three of them were over 20 in 1900, it's possible that these were childhood dolls that they hung on to as they reached adulthood. If this was the case, the dolls might have been discarded after accidental breakage, or when the sisters felt they had outgrown them.

One of these families owned a few decorative items. These included a glass crucifix that could hold a candle, indicating that either family might be Christian. The crucifix was probably expensive, and held important religious status to that household. The crucifix would have only been discarded after breaking. The other figurine, a ceramic gargoyle, might have simply been a decorative wall hanging or it might have fit into their religious or spiritual beliefs. Gargoyles were originally used as symbols, to encourage believers to be vigilant against the devil's workings.

Both the Walkers and the Breartons likely consumed wine and liquor. Decorative wine and shot glasses show a more than casual interest in serving alcohol. These dishes were acceptable to serve liquor to guests or mix drinks. The presence of wine and liquor bottles was also confirmed.

Privy D: Several bottles and artifacts associated with embalming were recovered from 1106 N. 7th St., including an intact embalming fluid bottle from the Dr. G. H. Michel and Co. This particular fluid was developed to embalm bodies in extreme heat. It's still in production today due to its ability to preserve delicate skin textures, especially in infants and children (<http://www.ghmichel.com/product.php>). It's possible then, that the family member that was prepared for burial at 1106 N. 7th St. was a child. During

1900, the Dauchette family was living at 1106 N. 7th St. The mother, Verinico, had given birth to 12 children by 1900, but only eight were still living. Other embalming-related items include something that appeared to be a chemistry set. The glass vials, tubes, and measuring devices may have also been useful while preparing a body for burial. While funeral parlors and church funerals were gaining more popularity at the beginning of the 20th century, some more traditional families believed that life began and ended in the home. Both the embalming and wake for family members occurred at the home. It's possible that the family was preparing one of their own or that they were providing the service to other families in an unofficial capacity.

Several bulk size perfume bottles were recovered from 1106 N. 7th St. These perfume bottles could have been used by female residents to mask body odor. They could have also been used by the embalmer to cover the smell of decomposition, or to protect their senses while they were preparing the bodies. While embalming probably prevented further decomposition, at least until the bodies were buried, smell still would have been a concern in the home.

Naturally, the home wasn't just for preparing bodies. Life continued on rather normally otherwise. The children of the Dauchette family had a toy tea set to play with, represented by a matching teapot and cup. A leather dog collar indicates that the family likely kept a dog as a pet, although it appears that the dog died after the family moved away. The Dauchette family clearly enjoyed soda. Almost 20 bottles were recovered from this lot. Even though the Dauchette family probably suffered personal loss, and prepared bodies for burial, they were still a typical family.

Privy E:

This privy was located at the David Davis Mansion (constructed 1870-1872) in Bloomington, Illinois (<http://daviddavismansion.org/>). Mr. Davis was a judge who was a friend of Abraham Lincoln. He was influential to the legal and political career of the future president. He owned the most land (2700 acres) in Illinois and his estate was valued at \$4-5 million at the time of his death in 1886. It is thought that he may have had diabetes later in life. The artifacts were uncovered when the two (male and female) privy vaults associated with the mansion were cleaned out by construction workers. Further research on the items found was conducted in 1989-90. Further information about the family is provided by Floyd Mansberger and Daniel Warren in a research report to the Illinois Historic Preservation Agency in 1900.

The PDF of that report can be found at the end of this lesson.

Name _____ Block/Period _____

Cure-alls and Quackery

As you have read, claims of tonics curing whatever ails you were everywhere and there were no regulations on products. Compare examples of “pharmaceuticals” found in the East St. Louis area to those of modern day pharmaceuticals.

Instructions:

1. Your teacher will hand you one of several advertisements from the turn of the 20th century.
2. Discuss with your group the claim being made.
 - a. What does the product claim to do, if anything?
 - b. What are your thoughts on the artwork/pictures?
 - c. What do you know about the ingredients of the product?
 - d. What information is missing from the advertisement?
3. How are products for these ailments different now? Look (at home or on the internet) for pharmaceuticals for the same ailments. Compare and contrast the advertising, and known ingredients.

Instruction to teachers: Print and cut out these advertisements to use with the Cure-alls and Quackery worksheet and the student reading.

