8.PCH.3 Analyze measures necessary to protect the environment.

Essential Standard

Clarifying Standard

- 8.PCH.3.2 Explain the impact of personal behaviors on the environment, both positively and negatively.

- How much water is wasted during the first person's brushing?
- How much water would that amount to in one year?
- What would happen to our water supply if everyone did this?
- What other ways do individuals waste water?
- How we can prevent this from happening?

- Statement of Objective:
- *As you can see from the previous demonstration, we often participate in activities that waste resources or harm the environment even if we are not aware we are doing so. By the end of today's lesson, you will be able to select personal behavior goals and strategies contributing to environmental improvement.*

- *What is waste?*
  - *(material left over that no longer serves its original purpose)*
  - *The form of that waste can be gas, liquid, or solid. It comes from businesses, residences, industry, agriculture, forestry, mining, and construction.*
- *Following WWII, a "throw away" mentality took hold in our country.*
- *Americans believed the land had an unlimited supply of resources and space for unwanted waste.*
- *Today each person discards an average of four to five pounds of waste per day.*

- *Estimates show Americans throw away nearly 60 billion cans, 28 billion bottles, 4 million tons of plastic, 40 million tons of paper, 100 million tires and 3 million cars.*
- *Though Americans represent only 5% of the world's population, we produce 50% of the world's trash.*
- *Where does it all go?*
  - *At the present rate, about 500 new landfills will be needed each year to accommodate all the additional waste Americans generate.*
  - *Five percent of all solid waste is what we see discarded along roadways and in illegal dump sites.*

- *The handling and disposal of solid waste is an important environmental issue.*
- *Without solutions to the problem, concerns arise about public health hazards like ground water contamination and air pollution.*
- *In addition, the geometric increase in the amount of waste generated is depleting available land and natural resources. In the U.S. less than 10% of solid wastes are recycled.*

- *There are growing opportunities to conserve resources. Some alternatives include:*
  1. *Waste reduction (redesign products and production processes).*
  2. *Separate organic waste for reuse.*
  3. *Collect, sort, and process materials for recycling.*
  4. *Recovery of energy (incineration, bioconversion, anaerobic digestion).*
  5. *Land disposal of residuals (remains after processing).*

- *Everyone must recognize the true costs (social, economic, and environmental) and take an active role to become a part of the solution by being wise consumers.*
- *Interesting "waste facts" with students:*
  1. *The energy saved by recycling one glass bottle will run a TV for three hours.*
  2. *The energy saved by recycling one aluminum can will light a 100-watt bulb for 3.5 hours.*
  3. *Each ton of paper recycled saves 17 trees.*
  4. *If the Pilgrims had used aluminum cans, they could still be in the ground today. (It takes 100-500 years for aluminum to decompose.)*

- *The following are average decomposition rates provided the materials are exposed to*
- *sunlight and rainwater. Those conditions are not always present in landfills!*
  - *Banana peel up to 6 months*
  - *Wax paper cup 5 years*
  - *Styrofoam cup 10-20 years*
  - *Plastic 50-70 years*
  - *Glass Never*
  - *Rubber Never*

- *The production of an aluminum can requires 6,365 British thermal units (BTU) of energy to mine and transport the bauxite ore (used for making aluminum), to produce the aluminum, and to fabricate the metal into a can.*
- *Using recycled aluminum saves approximately 96% of the energy required to make a can from new ore. Recycling one pound of aluminum (26-27 cans) saves 7.5-kilowatt hours of electricity, four pounds of wasted bauxite, and two pounds of chemicals.*
- *Recycling also reduces water use by 40%, water pollution by 76%, air pollution by 85%, and mining waste by 97% compared to the production of aluminum from ore.*

Independent Practice:

- Each student will design a written advertisement promoting young people's influence on the environment.
- The ad is to address specific goals and strategies on improving the environment.
- Examples include waste reduction, air or water pollution, and water or energy conservation.

Closure:

- *Today we have discussed the importance of individual strategies that contribute to environmental improvement. It is important to take this information and develop environmental practices that will affect our future. Your actions make a difference to the environment!*