



DEQ Environmental Outreach Lesson Plans

Educators will be able to use this document to select potential lesson plans related to their class curriculum. Each DEQ lesson plan is described in a short paragraph and includes a hyperlink to its original file. The lesson plans are organized by grade level beginning with the youngest. ***(MOVE INTRANET LPS ONLINE)***

K-3 Playing Hide and Seek with Pollution

Students learn what pollution is and how to identify it, if possible. A water activity uses food coloring to show visible pollution, vinegar to represent smell in pollution, and salt water to recognize that not all pollutants can be detected by human senses. Students learn that using senses such as taste and smell can be dangerous when attempting to identify pollution. Follow-up options include a coloring activity to show a comparison between a polluted and clean environment, a reading of *The Lorax* by Dr. Seuss, picking up litter on school grounds, and discussing ways each student can help prevent pollution.

http://www.deq.idaho.gov/media/570161-pollution_lp.pdf

K-3 Recycling Relay

Students learn the concepts of recycling and reusing products instead of throwing them away. A trash categorizing activity teaches students how to identify various pieces of trash that can be reused, recycled, or disposed of and how this is beneficial to the environment. Once students gain a general understanding of the basic categories, they can separate into groups and begin a relay race in which each member has to place a piece of trash in its correct pile or bin. Follow-up activities include creating art projects from reusable materials, bringing recyclable items from for the class to categorize, and reading a book on recycling or related topic.

http://www.deq.idaho.gov/media/570246-recycling_relay_lp.pdf

K-5 Hey, We Need That!

Students learn how living things use air, water, land, and sunlight and what could happen if that usage was taken away. A plant-growing activity demonstrates the effects of pollution on plants and how that will have consequences on the environment. Students place plants in a variety of environments such as direct sunlight, zero sunlight, polluted soil etc. and study the changes in the plants over time. Follow-up options include a collage creating activity, a quiz on the four essential needs for living things, an overview of laws and regulations preventing pollution, and a discussion on how they can help prevent pollution.

http://www.deq.idaho.gov/media/563459-we_need_that_lp.pdf

http://www.deq.idaho.gov/air/educ_tools/we_need_that_lp.pdf

3-10 What Makes My Blue Sky Brown? (*Intranet*)

Students learn what particulate emissions are, the rates in which they are released, and how they affect the environment. An activity has students match jars of particulate matter with their corresponding source (vehicles, fires, construction etc.) to demonstrate how much harmful material is released per hour. Handouts are used to reinforce the material as well as provide the answers to the matching activity. Follow-up activities include tracking the levels of pollutants in the area and creating graphs and charts, preparing presentations or written reports on specific particulate matter, and creating clean air awareness fliers and posters.

http://intranet.deq.idaho.gov/divisions/env_mgmt/outreach/lesson_plan_blue_sky_brown.pdf

4-6 Eastern Snake River Plain Aquifer Placemat

Students learn what aquifers are and why they are important to people and the environment. Four mini-activities visually describe the size, function, and importance of the Eastern Snake River Plain Aquifer as well as how it is affected by pollution and recharge/discharge. Follow-up options include creating charts and graphs, drawing before and after pictures, and completing activity booklets.

http://www.deq.idaho.gov/media/570189-esrpa_placemat_guide_lp.pdf

4-7 Doing the Three R Wrap

Students learn about the three Rs of effective conservation: Reduce, Reuse, and Recycle. A gift wrapping activity demonstrates how a simple act of wrapping a present can result in excess waste. Students wrap gifts utilizing the three Rs by using newspaper instead of buying wrapping paper, reusing boxes from other products, and recycling any materials left over. Students learn how these principles apply to their daily lives and how they can help conservation efforts. Follow-up options include creating reusable grocery bags for their parents/guardians, making art projects from reusable materials, and creating gift tags from old greeting or birthday cards.

http://www.deq.idaho.gov/media/570213-wrap_lp.pdf

4-7 Making a Mini-Landfill

Students learn about the functionality and environmental concerns involved with landfills. Students create their own mini-landfills and observe how waste is broken down over time. Students learn that some waste does not break down as much as others and how this can lead to a build up of materials. The landfill activity teaches students the importance of conservation by using the principles of Reduce, Reuse, and Recycle. Follow-up activities include researching recycling opportunities in the community, bringing in recyclable products from home, and completing a waste management worksheet.

http://www.deq.idaho.gov/media/570217-landfill_lp.pdf

http://www.deq.idaho.gov/waste/educ_tools/landfill_lp.pdf

4-7 The Rain Takes Pollution Mainly Down the Drain

Students learn what stormwater is, where it goes, and how it can become polluted. A stormwater identification and creation activity demonstrates how runoff from rain or snow passes through pollutants on the way to major water supplies like rivers, streams, or oceans. Students create their own stormwater runoff maze and simulate water running through various portions. Students are taught about the variety of pollutants that can be encountered as well as ways they can help prevent the amount of pollution. Follow-up options include visiting a storm drain outlet, creating educational posters to put around the school, and researching local laws and news about stormwater for presentations.

http://www.deq.idaho.gov/media/570201-storm_drain_lp.pdf

4-7 Smoke Detectives

Students learn how air quality is affected by particulate matter released into the atmosphere by wood burning and vehicle emissions. An air quality observation activity teaches students how to collect data and compare their results to the Air Quality Index over the course of one month. Students discuss ways they can reduce the amount of particulate matter in the air by using better wood-burning practices and limiting vehicle emissions. Follow-up options include creating education posters, researching efficient wood-burning stoves for in-class presentations, and researching government regulations and incentives for wood burning.

http://www.deq.idaho.gov/media/570181-smoke_detectives_lp.pdf

4-7 Where's Your Watershed?

Students learn what a watershed is, how it becomes polluted, and how they can help prevent pollution in their local watershed. A physical demonstration of slope shows how water flows downhill to the same general location. Students then color a map of their watershed to show where water in their area flows as well as create model watersheds out of paper and tinfoil. Activities allow students to visually see how a watershed functions and how that is important when considering pollution. Follow-up options include creating a watershed journal, inviting a water quality expert as a guest speaker, and taking a field trip to a local water treatment facility.

http://www.deq.idaho.gov/media/570205-watershed_lp.pdf

4-8 A+B=Yuck! Secondary Pollutants in Our Air (*Intranet*)

Students are taught that not all air pollution is caused by sources like vehicle emissions and fires, but that there are secondary pollutants as well. Students learn what secondary pollutants are, how they are created, and how they affect the environment. An activity demonstrates how secondary pollutants are formed by the mixture of chemicals in the air via a simulation inside a tank. Students are able to view Ammonia and Hydrochloric Acid mix inside a tank and create a white, smoky material representing chemical mixture in the air. Follow-up activities include discussing the difference between primary and secondary pollutants, creating clean air awareness posters, and completing air pollution handouts.

http://intranet.deq.idaho.gov/divisions/env_mgmt/outreach/lesson_plan_secondary_pollutants_air.pdf

4-8 Earth Cleaning: “Dusting” the Air

Students learn what particular matter is and how it affects air quality and people. An air quality activity measures the amount of particulate matter in the air in various locations at their school. Students will create and place a dust catcher that is used to collect air particles over time and then compare them based on location and particle amount.

Follow-up options include creating a school map highlighting polluted areas, compiling news articles about air quality, and researching specific air pollutants for presentations.

http://www.deq.idaho.gov/media/570173-dust_catchers_lp.pdf

4-8 Incredible, Edible Aquifer

Students learn the geologic structure and formation of an aquifer and how its water can become polluted. An edible aquifer building activity allows students to visually see how an aquifer functions and how pollutants can seep into its water supply. Students then learn the importance of conservation techniques as well as specific things they can do to help prevent aquifer pollution. Follow-up options include researching groundwater and aquifer information for presentations, completing short-answer discussion questions, and compiling a list of specific vocabulary words related to groundwater pollution.

http://www.deq.idaho.gov/media/570193-edible_aquifer_lp.pdf

4-8 Inversion in a Cup

Students learn how polluted air can become trapped due to convection and temperature inversions. A salt water layering activity visually simulates a temperature inversion in the air so that students can see how pollution becomes trapped during the convection process. Students will learn what causes this air pollution (vehicle exhaust, wood burning, etc) and what they can do to help prevent it. Follow-up options include tracking temperature inversions, researching technologies that help prevent air pollution, and inviting a local meteorologist or DEQ air quality expert to speak to the class.

http://www.deq.idaho.gov/media/570177-inversion_in_cup_lp.pdf

4-8 Pollution and Healthy Environment: Like Oil and Water

Students learn how water becomes polluted and how difficult it is to clean once it is. A water mixing activity demonstrates how some water can be visibly polluted while other water can look safe. Students are taught that there are harmful chemicals that cannot be detected by their senses to tell if water is safe to use and that there are ways they can help prevent water pollution. Follow-up options include creating pollution awareness posters, researching pollutants for presentations, and repeating the mixing activity using water students bring from home.

http://www.deq.idaho.gov/media/570197-oil_and_water_lp.pdf

4-12 Something Old, New, Borrowed, Reused

Students learn the history of environmental conservation from various cultural backgrounds and necessities. A class activity has students bring items from their homes that once were someone else's to demonstrate the concept of reuse. Students then watch interviews with people of varying backgrounds discuss past conservation efforts to learn how these efforts have reached the point they are today. A discussion of these concepts reinforces the importance of reusing, reducing, and recycling materials. Follow-up activities include having a guest speaker, creating art projects from reusable materials, and watching how garbage pick up or recycling is done at their school.

http://www.deq.idaho.gov/media/570250-old_new_borrowed_reused_lp.pdf

7-9 When a Car Coughs...Taking a Close Look at Vehicle Exhaust

Students learn how air quality is affected by vehicle emissions and what they can do to help prevent the pollution. An emissions measurement activity visually demonstrates the amount of pollution released into the atmosphere by a variety of car models. Follow-up options include researching alternative fuel options for presentations, preparing written/oral reports on vehicle emissions, and developing a plan their school or community can follow to reduce the amount of harmful vehicle emissions.

http://www.deq.idaho.gov/media/570185-car_coughs_vehicle_exhaust_lp.pdf

7-12 Clean Air Zone: Putting it to the Test

Students learn about vehicle emissions and the effects they can have on people and the environment. An emissions measurement activity shows the amount of harmful particles that are released into the air by idling cars. Students implement a Clean Air Zone program to reduce the amount of vehicle emissions at local schools and measure the results before and after implementation. Topic is reinforced by class presentations on their data from particular schools and/or times of day. Follow-up options include creating awareness posters, writing letters to newspapers, monitoring pollutant levels in specific areas, and researching specific air pollutants and giving presentations.

http://www.deq.idaho.gov/media/570169-clean_air_zone_lp.pdf

8-12 Conduct a Mercury Audit in Your School

Students learn about the harmful effects of mercury on people and the environment. An interactive mercury audit has students locate and identify the element in their school in order to learn the prevalence of mercury in their everyday lives. Students then prepare written and/or oral reports based on their findings on the dangers and locations of mercury. Follow-up options include a second mercury audit of each student's individual home, a field trip to a sanitary landfill or recycling center, and gathering mercury related news articles to share in class.

http://www.deq.idaho.gov/media/570209-mercury_audit_lp.pdf

http://www.deq.idaho.gov/waste/educ_tools/mercury_audit_lp.pdf