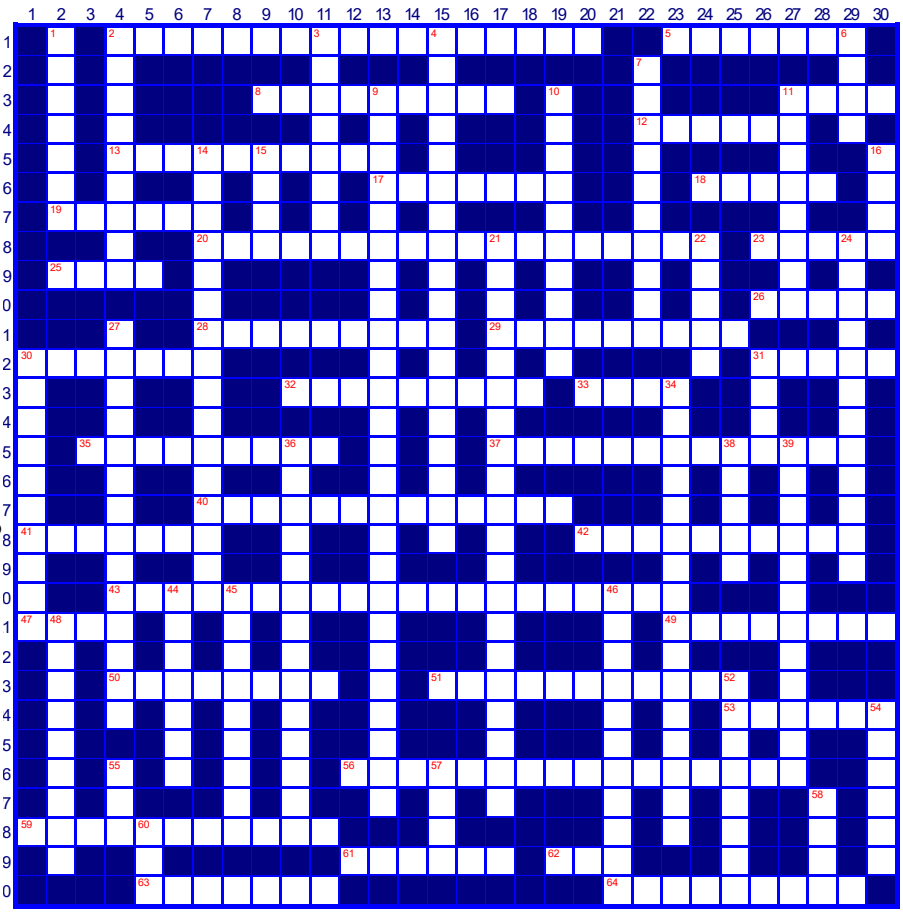
# Environment Protection - 30 x 30



## Across

**2** The maximum concentration of a chemical that will dissolve in pure water at a reference temperature. (7,10)

**5** (Cd) A heavy metal that accumulates in the environment. (7)

**8** Use of screens to remove coarse floating and suspended solids from sewage. (9)

**11** An insect, rodent, nematode, fungus, weed or other form of terrestrial or aquatic plant or animal life that is injurious to health or the environment. (4)

**12** A vessel designed to transfer heat produced by combustion or electric resistance to water. Boilers may provide hot water or steam. (6)

**13** Consumer products, other items, and packaging used once or a few times and discarded thereafter. (10)

**17** Small tank or storage facility used to store water for a home or farm; often used to store rain water. (7)

**18** 1. Unwanted materials left over from a manufacturing process. 2. Refuse from places of human or animal habitation. (5)

**19** A type of treeless ecosystem dominated by lichens, mosses, grasses, and woody plants. XXXXXX is found at high latitudes (arctic XXXXXX) and high altitudes (alpine XXXXXX). Arctic XXXXXXis underlain by permafrost and is usually water saturated. (6)

**20** A type of thermal treatment using moderate temperatures and high pressures to enhance the ability of water to break down large organic molecules into smaller, less toxic ones. Oxygen injected during this process combines with simple organic compounds to form carbon dioxide and water. (13,5)

**23** Materials discarded from manufacturing operations that may be suitable for reprocessing.

(5)

**25** The amount of dissolved oxygen consumed in five days by biological processes breaking down organic matter. (4)

**26** A control device that burns hazardous materials to prevent their release into the environment; may operate continuously or intermittently, usually on top of a stack. (5)

**28** A chemical added to a pesticide to increase its activity. (9)

**29** In photochemistry, a compound antecedent to a pollutant. For example, volatile organic compounds (VOCs) and nitric oxides of nitrogen react in sunlight to form ozone or other photochemical oxidants. As such, VOCs and oxides of nitrogen are XXXXXXXXXs. (9)

**30** An underground geological formation, or group of formations, containing water. Are sources of groundwater for wells and springs. (7)

**31** Minerals that water picks up as it passes through the air, over and under the ground, or from households and industry. (5)

**32** Any water that does not contain a significant amount of dissolved minerals such as salts of calcium or magnesium. (4,5)

**33** The uranium-containing heart of a nuclear reactor, where energy is released. (4)

**35** A rough measure used to estimate the amount of heating required in a given area; is defined as the difference between the mean daily temperature and 65 degrees Fahrenheit. Degree-days are also calculated to estimate cooling requirements. (6,3)

**37** The removal or destruction of all microorganisms, including pathogenic and other bacteria, vegetative forms, and spores. (13)

**40** A rating of the purity of water based on a count of fecal bacteria. (8,5)

**41** A collective term for some of the primary constituents of photochemical smog. (7)

**42** The formation and collapse of gas pockets or bubbles on the blade of an impeller or the gate of a valve; collapse of these pockets or bubbles drives water with such force that it can cause pitting of the gate or valve surface. (10)

**43** A way of measuring concentrations of certain substances in water using an electric current that flows during a chemical reaction. (11,9)

**47** Carbon dust formed by incomplete combustion. (4)

**49** The entire system of sewage collection, treatment, and disposal. (8)

**50** Any form of animal or plant life. (8)

**51** Metallic elements with high atomic weights; (e.g., mercury, chromium, cadmium, arsenic, and lead); can damage living things at low concentrations and tend to accumulate in the food chain. (5,6)

**53** The condition of water or soil that contains a sufficient amount of acid substances to lower the pH below 7.0. (6)

**56** Conversion of coal to a gaseous product by one of several available technologies. (4,12)

**59** Any physical, chemical, biological, or radiological substance or matter that has an adverse effect on air, water, or soil. (11)

**61** A semi-solid residue from any

of a number of air or water treatment processes; can be a hazardous waste. (6)

**62** - A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water. The greater the XXX, the greater the degree of pollution. (3)

**63** The place where a population (e.g., human, animal, plant, microorganism) lives and its surroundings, both living and non-living. (7)

**64** The interacting system of a biological community and its non-living environmental surroundings. (9)

**Down**

**1** A measured portion of a sample taken for analysis. One or more aliquots make up a sample. (7)

**2** A facility, whose use has been permanently discontinued or which is in a state of such disrepair that it cannot be used for its intended purpose. (9)

**3** An air pollution device that uses a spray of water or reactant or a dry process to trap pollutants in emissions. (8)

**4** Unit of heat energy equal to the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit at sea level. (7,7,4)

**6** Liquid particles measuring 40 to 500 micrometers (pm), are formed by condensation of vapour. By comparison, fog particles are smaller than 40 micrometers (pm). (4)

**7** Any unconfined portion of the atmosphere open air, surrounding air. (7,3)

**9** (ESP) A device that removes particles from a gas stream (smoke) after combustion occurs. The XXX imparts an electrical charge to the particles, causing them to adhere to metal plates inside the precipitator. Rapping on the plates causes the particles to fall into a hopper for disposal. (13,12)

**10** The protective layer in the atmosphere, about 15 miles above the ground, that absorbs some of the sun's ultraviolet rays, thereby reducing the amount of potentially harmful radiation that reaches the earth's surface. (5,5)

**11** A series of formal steps for conducting a test. (8)

**14** An incinerator that operates at extremely high temperatures; treats highly toxic wastes that do not burn easily. (6,3,7)

**15** A pit or tank that catches liquid runoff for drainage or disposal. (4)

**16** A site used to dispose off solid waste without environmental controls. (4)

**21** (CNG) An alternative fuel for motor vehicles; considered one of the cleanest because of low hydrocarbon emissions and its vapours are relatively non-ozone producing. However, vehiles fuelled wih CNG do emit a significant quanity of nitrogen oxides. (10,7,3)

**22** A colourless naturally occurring, radioactive, inert gas formed by radioactive decay of radium atoms in soil or rocks. (5)

**24** A chamber used to inject air into water. (8,4)

**27** Use of living organisms to clean up oil spills or remove other pollutants from soil, water, or wastewater; use of organisms such as non-harmful insects to remove agricultural pests or counteract diseases of trees, plants, and garden soil. (14)

**30** A disease associated with inhalation of asbestos fibres. The disease makes breathing progressively more difficult and can be fatal.

(10)

**31** Sedimentary materials composed of fine or intermediate-sized mineral particles. (4)

**34** The maximum amount of air polluting discharge legally allowed from a single source, mobile or stationary. (8,8)

**36** A complex chemical and atmospheric phenomenon that occurs when emissions of sulfur and nitrogen compounds and other substances are transformed by chemical processes in the atmosphere, often far from the original sources, and then deposited on earth in either wet or dry form. The wet forms, popularly called "acid rain," can fall to earth as rain, snow, or fog. The dry forms are acidic gases or particulates. (4,10)

**38** Simple rootless plants that grow in sunlit waters in proportion to the amount of available nutrients. They can affect water quality adversely by lowering the dissolved oxygen in the water. They are food for fish and small aquatic animals. (5)

**39** A treatment technology involving destruction of waste by controlled burning at high temperatures; e.g., burning sludge to remove the water and reduce the remaining residues to a safe, non-burnable ash that can be disposed of safely on land, in some waters, or in underground locations. (12)

**44** Removing stagnant air or water from sampling zone or equipment prior to sample collection. (7)

**45** Application of ozone to water for disinfection or for taste and odour control. (9)

**46** A pesticide compound specifically used to kill or prevent the growth of insects. (11)

**48** The chemical addition of oxygen to break down pollutants or organic waste; e.g., destruction of chemicals such as cyanides, phenols, and organic sulfur compounds in sewage by bacterial and chemical means. (9)

**52** The percentage of salt in water. (8)

**54** MONOXIDE (CO) A colorless, odorless, poisonous gas produced by incomplete fossil fuel combustion. (6)

**55** The first chlorinated hydrocarbon insecticide chemical name Dichloro-Diphenyl-Trichloroethane) . It has a half-life of 15 years and can collect in fatty tissues of certain animals. EPA banned registration and interstate sale of XXX for virtually all but emergency uses in the United States in 1972 because of its persistence in the environment and accumulation in the food chain. (3)

**57** (Pb) A heavy metal that is hazardous to health if breathed or swallowed. Its use in gasoline, paints, and plumbing compounds has been sharply restricted or eliminated by laws and regulations. (4)

**58** Tiny particles trapped in vapour in a gas stream. (4)

**60** The mineral content of a product remaining after complete combustion. (3)