



Need to Know Answer Summaries

For use with Activity 1 - Need to Know

On the farm you must dispose of 150 gallons of waste oil from the farm machinery.	It is illegal to dispose of oil improperly. One should carefully transfer dirty oil into a leak proof container with a lid. According to the EPA, one oil change can contaminate 1,000,000 gallons of water. Used oil can also be burned on site in oil-fire space heaters if the heater burns only used oil generated on site, the heater has a maximum capacity of 0.5 million British thermal units per hour and if the combustion gases are vented directly to the outside air. Illinois has banned the disposal of used oil in landfills; hence the best option is to recycle (oil distributors, auto repair stations and commercial recycling services can be contacted). Transporting greater than 55 gallons of used oil must be made by an Illinois licensed special waste hauler with both EPA and Illinois EPA identification numbers and must be accompanied by a manifest.
At the hospital lab you need to dispose of penicillin, tetracycline, and erythromycin.	Currently, 197 people die every day in the US from accidental drug overdose. It is important to not crush medicine or dispose of the medicine improperly. Medicine take-back programs reduce the chances that others can take the medicine. If there is no medicine take-back in your area, medicine should be mixed NOT crushed with unpalatable substances such as kitten litters or used coffee grounds.
The painter you work for asked you to get rid of cans that are still $\frac{1}{4}$ full of latex paint.	Paint can be toxic and dangerous to the environment if not disposed of properly. Take to a recycling center or mix in an equal amount of absorbent like kitty litter until it thickens, let it sit for an hour. Remove the lid and throw in the garbage. If you don't have much paint left in the can, you can just remove the lid and let the paint dry out on its own. Make sure that it's in a location where small children or pets can't get to it. There are also

	commercial paint hardeners that you can purchase if you prefer not to use cat litter. Just follow the manufacturer's instructions.
You are jackhammering a large poured cement patio to replace it with a wooden deck.	Protect windows with plywood to prevent concrete chunks from doing damage. Make sure any necessary permits are obtained and posted (if necessary). Check with utility companies to make sure there are no gas lines beneath the patio's surface. The ideal weather for removing concrete is dry and temperate. Personal Protective Equipment (PPE) such as gloves, goggles, steel toe boots, ear plugs, high visibility vest, hat, and respirator should be worn.
As part of your landscaping job you must spray herbicides.	Read and follow all labels, directions, and precautions on the herbicide bottle. Ensure to cover exposed skin. Long pants, sleeves, rubber shoes, respirator, goggles, unlined chemical or waterproof gloves should be worn. Some herbicide solutions are concentrated and must be diluted with water before use. Do not add more herbicide than the maximum rate allowed on the label. Adding more than what is allowed will not give better pest control and, in most cases, it is illegal. Store all herbicides and pesticides, spraying equipment, and mixing containers away from the reach of children or pets. These chemicals must be kept in the original container with the label intact. Exposure to pesticides can be in these forms: Dermal exposure (getting chemicals on the skin), inhalation exposure (Breathing in chemical vapor or dust), ocular exposure (chemicals entering through the eye), oral exposure (by swallowing).
You spend most of your day welding galvanized steel.	Welding helmet, goggles, gloves, aprons, boots, fire-retardant clothing, and respirator is required so that zinc oxide fumes from the galvanizing are not inhaled. Zinc oxide can cause metal fume fever and over exposure causes flu like symptoms which can be severe in some cases. Welders should keep their heads out of the fume plume and to position themselves relative to the air flow around themselves, so fumes and dust do not collect inside their welding shields. OSHA requires that fabricators have a written

	<p>procedure for use of personal protective equipment such as respirators and masks; that the equipment be selected from that approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health; that the equipment selection be based on the hazard to which the welder is exposed; that only employees who are physically capable of doing the job and know how to use the safety equipment are assigned to perform work; that respirators are cleaned and disinfected regularly, stored in a convenient, sanitary location and kept in good repair; that the work area be monitored for changes in exposure; that the medical status of employees is reviewed regularly; and that the program be reviewed on a regular basis to appraise its effectiveness.</p>
<p>The food truck where you work needs to dispose of ten gallons of used peanut oil.</p>	<p>You can likely get free pick-up of used cooking oil (yellow grease) and may even be able to sell it at a small price. You can also let it solidify and then scoop into a leakproof container before disposing. Do not pour into the drain as this can cause clogs. Baking soda and white vinegar can be used to clear some of the grease away. You can also dispose used oil by including it in your compost pile. Contact the engineering or environmental sciences department of the nearest large university if there is no government recycling program in your area. Many universities have small-scale biodiesel research and production programs that accept donated oil.</p>
<p>All week you will be installing fiberglass insulation at a large apartment complex.</p>	<p>Fiberglass insulation can irritate the skin and respiratory system. Whenever you handle the insulation, wear long pants, a long-sleeved shirt, tight-fitting eye goggles, gloves, and a dust mask, or better yet, a dual-cartridge respirator. To keep the itchy glass fibers from sticking to your neck, sprinkle baby powder onto the exposed skin around your shirt collar. It is important to calculate the R value; it tells the product's resistance to heat flow. The higher the R value, the greater its thermal resistance. The attic needs more insulation than regular walls in the apartment because it is very exposed and has less material blocking it from the outside world.</p>

<p>You are painting cars in a spray booth at an auto body shop.</p>	<p>Before you begin a spray job, it is essential that you check that the booth itself and the booth equipment are clean and working correctly. It is important to ensure that the air pressure in the booth and air pressure on the spray are all set up correctly. Also, the filters need to be serviced regularly as exhaust filters will become clogged over time with overspray and intake filters will become clogged from outside elements like dust. You need to make sure you are spraying near the vent that is supplying air. Ideally, you should be closer to the air vent than the spray paint gun is, to allow any overspray to be blown away from you and towards the exhaust fan. Until you step out of the paint booth, you need to keep your protective gear on, as the fumes are harmful. Avoid prolonged exposure to heat or sunlight.</p>
<p>At the dental office you are disposing of all x-rays of patients who have passed away.</p>	<p>Dental x-rays have become a focus of ADA and EPA in recent times, this is primarily due to the silver and lead present in solutions, films, and foils used throughout the X-ray process. A silver recovery unit must be installed before waste containing silver can be disposed down a drain. A safer option is to take the x-rays to a waste management facility to properly handle the lead and silver. Dental Recycling North America can be contacted for more information on this process.</p>
<p>You are spraying pesticides on a series of ponds for mosquito abatement.</p>	<p>Ensure you wear PPE and mix the chemicals properly. It is important to avoid over spraying. CDC recommends 1 ounce (two tablespoons) per acre or about the size of a football field. This amount poses no harm to people or pets in the area that is being sprayed. It is important to use EPA registered products when spraying. Although it is not necessary, people who are concerned about exposure to a pesticide, such as those with chemical sensitivity or breathing conditions such as asthma, can reduce their potential for exposure by staying indoors during the application period (typically nighttime). The pesticides that are put into water to kill mosquito larvae and pupae before they become adults are called larvicides</p>

	or pupacides. Most of these products are designed to kill only mosquitoes and pose very little risk to other insects or animals when applied properly
The office needs to dispose of 12 computers, monitors, and keyboards from the 1990s.	The improper disposal of electronic products leads to the possibility of damaging the environment. As more e-waste is placed in landfills, exposure to environmental toxins is likely to increase, resulting in elevated risks of cancer and developmental and neurological disorders. Delete information on the computer and make sure you wipe drives completely. You can donate them if practical, possible or legal to do so. If not, take them to a proper electronics recycler to keep toxic materials out of landfills.
At the pottery studio, you are responsible for creating the glazes used on the pottery before firing.	Crystalline silica is present in almost all glazes and can scar lung tissue if inhaled. Barium Carbonate, Sodium Borates, and Lead compounds can be present as colorless fluxes in glazes. Call your manufacturer to see if there are any ingredients of concern to you in the commercial glazes, slips, or stains you may be using. Read Material Safety Data Sheets and U.S. Dept. of Labor Occupational Health Guidelines for detailed information about the hazardous materials that you use. Do not assume that industrial threshold limits for exposure are safe guidelines. Ensure you do not eat, drink, or smoke in glazing area. Use a mask for vapors and gases when working with lustre glazes and spray glazes only in a properly constructed, vented and filtered spray booth. Scrub your hands thoroughly after glazing. Take your toxic glaze scraps to toxic waste collection sites.
You are in charge of purchasing dynamite for your road construction company,	In addition to requiring an ATF license or permit, federal law requires anyone transporting explosives to comply with federal storage requirements while moving the material. The DOT classifies explosives as a hazardous material. This means those who transport explosives must receive certain training, have a security plan, and pack the explosives in a particular manner. Federal law requires all licensees and permittees to keep records of acquisitions, dispositions, and storage of explosives. It requires them to maintain a daily summary of the number of explosives received, removed, and remaining. This record must be kept at the container in

	<p>which the explosives are stored or at one central location on the business premises. Sellers must retain, for at least five years, a copy of the ATF form used for the transaction as part of their permanent records. Modern packaging helps eliminate this by placing the dynamite into sealed plastic bags and using wax-coated cardboard.</p>
<p>During a roadside clean-up day you find several five-gallon buckets that contain remnants of ammonium nitrate.</p>	<p>Ammonium Nitrate can cause eye and skin irritation and can also cause severe irritation of the respiratory tract when inhaled. Immediately flush eyes and skin with water for about 15 minutes if contact happens. This substance is highly soluble in water and at low concentration can be fatal to livestock if it contaminates water sources. Collected waste must be transferred into a closed, preferably metal container and sent to a RCRA approved waste disposal facility. Avoid contact with skin, eyes, and clothes. Keep away from combustible materials</p>
<p>As a house restorer, you have been told to demolish a bathroom that has mold growing on almost every surface.</p>	<p>Exposure to damp and moldy environments may cause a variety of health effects. Some people are sensitive to molds. For these people, exposure to molds can lead to symptoms such as stuffy nose, wheezing, and red or itchy eyes, or skin. Those with allergies to molds or with asthma may have more intense reactions. Mold growth can be removed from hard surfaces with commercial products, soap and water, or a bleach solution of no more than 1 cup (8 ounces) of bleach in 1 gallon of water to kill mold on surfaces. Never mix bleach with ammonia or other household cleaners. Wear PPE including respirator or face mask rated for black mold spore protection, goggles, gloves, waterproof boots and long pants, and shirt.</p>