

Safety Poster Project

Group Safety Poster

Your mission, because you will choose to accept it:

1. Create an informational poster to be displayed in the shop according to the facts and notes listed on the attached sheets of paper.
2. All poster should have:
 - a. A list of groups members, course name and period number.
3. Include as many graphics as possible to display a safe message to all readers.
4. Posters should be creative, and easy to read.
5. Be prepared to present this poster with your teammates in class.
6. This poster will remain in the Ag Shop for a long time. Make sure information is concise and relevant.
7. Follow the rubric below; this assignment is worth up to 20 points for each person involved.

Making A Poster : Shop Safety Poster Rubric

Teacher Name: **Mr. Ermis**

Student Name: _____

CATEGORY	5	3	2	1
All Important Group Information is Present	At least 7 accurate facts are displayed on the poster.	5-6 accurate facts are displayed on the poster.	3-4 accurate facts are displayed on the poster.	Less than 3 accurate facts are displayed on the poster.
Images Depicting Information	All graphics are related to the topic and make it easier to understand. All borrowed graphics have a source citation.	All graphics are related to the topic and most make it easier to understand. All borrowed graphics have a source citation.	All graphics relate to the topic. Most borrowed graphics have a source citation.	Graphics do not relate to the topic OR several borrowed graphics do not have a source citation.
Proper Descriptions/Captions/Related Information	All items of importance on the poster are clearly labeled with labels that can be read from at least 3 ft. away.	Almost all items of importance on the poster are clearly labeled with labels that can be read from at least 3 ft. away.	Several items of importance on the poster are clearly labeled with labels that can be read from at least 3 ft. away.	Labels are too small to view OR no important items were labeled.
Everyone Else in Class Will Comprehend and Use this Information	Student can accurately answer all questions related to facts in the poster and processes used to create the poster.	Student can accurately answer most questions related to facts in the poster and processes used to create the poster.	Student can accurately answer about 75% of questions related to facts in the poster and processes used to create the poster.	Student appears to have insufficient knowledge about the facts or processes used in the poster.

You will be tested on the information that has been given in your group packets.

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Group 1

A. Introduction:

The most frequent cause of injuries and accidents in agriculture comes from the use of tools and machinery. Forty-four percent of all agriculture-related injuries occur while using farm machinery. Most of these accidents and injuries can be prevented through the development of safe work habits. The school agricultural mechanics shop is a good place to develop these safe habits.

B. Setting Up a Safe Agricultural Mechanics Shop

1. Install all machinery according to the manufacturer's directions.
2. Provide proper storage for all tools, equipment, material, scraps, flammable liquids, chemicals, and waste materials.
3. Keep all tools and equipment fitted and adjusted properly.
4. Remove all damaged tools and equipment from the shop or to a place where they cannot be accidentally picked up and used.
5. Provide proper orientation and practice to anyone who is going to use a particular piece of equipment.
6. Keep all moving parts of machinery properly shielded.
7. Keep working areas free of clutter, grease, dirt, and un-needed tools.
8. Avoid placing or storing objects where they might fall. Mark any area where an object may fall.
9. Protect the eyes, face, hands, and body with protective clothing and gear.

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Group 2

- C. Color marking systems are used to help shop users be alert to danger or hazards, to help people locate certain objects, or to help people react quickly during an emergency.
1. Red is used to signify danger. Red tape or paint should be placed around all equipment or areas that are to be identified as items of danger or emergency.
 2. Orange is used to mark off areas where machine hazards are likely. This color is designated to mark off a safe working distance or an area in the flight path of moving parts.
 3. Yellow is the color used to designate caution. Yellow and black stripes are often used to mark stairs and other stationary objects where a hazard may occur.
 4. Green indicates the presence of safety equipment, safety areas, or first aid kits.
 5. Purple is used to signify radioactivity. This is not a problem in most agricultural mechanics shops, but some chemicals may be used where radioactive isotopes are present.
 6. Gray is used to signify all work areas and usable machinery. Most shop floors are also painted gray because it is a restful color and it contrasts well with all other safety colors.
 7. White, or white and black stripes are used to mark traffic pathways within the shop.
 8. Blue is used as a background color if information is to be provided. Signs such as 'Out of Order' are written in white lettering on a blue background.

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Group 3

D. Protective clothing and gear can reduce the amount of injuries in the shop. Many accidents are caused by flying debris or contact with moving equipment. Thirty-six percent of all accidents in the shop occur to the arms and hands, ten percent occur to the head, and twenty-five percent of all injuries occur to the body. Proper use of protective clothing and gear can minimize or prevent these injuries.

1. Safety goggles or glasses should be worn in the shop at all times. They should be equipped with impact resistant lenses.
 - a. Tinted eye protection must be worn when welding. Separate tints are required for arc and gas welding in order to prevent burns to the eyes.
 - b. A face shield is required where flying debris is a problem. Grinders, planers, and power saws are examples of equipment that cause flying debris.
2. Headgear is used to restrain long hair and protect the head from falling objects. Woolen hats, headbands, and hairnets are acceptable to prevent long hair from coming in contact with moving parts, chemicals, or an open flame. Hard hats are required when falling objects may be a hazard.
3. Protective clothing is used to keep the body safe from injuries. Such clothing should fit properly and have no loose cuffs, strings, or ties that may get caught in machinery. The clothing should also be fire resistant and be tough enough to protect the body from scrapes and abrasions. Several types of protective clothing are available.
 - a. Coveralls are very popular because they cover the entire body as well as the legs and arms. Pockets are also an advantage of coveralls. Care should be taken to prevent any loose strings or cuffs on the coveralls. All buttons and zippers should have a protective flap and care should be taken to prevent ripped pockets from getting caught in moving machinery.
 - b. Aprons are often used to protect the body while welding. The leather apron prevents sparks from reaching the body. The disadvantage of aprons is that they require a string to tie them on, which is a hazard when working around moving parts. Aprons protect the body well, but do not provide protection to the arms and legs.
 - c. Shop coats are a good medium between coveralls and aprons. They protect both the body and arms and still have pockets to hold small tools. Zippers and buttons should have a protective flap to prevent electric shock or catching in moving parts. The shop coat is also the easiest body protection to put on and is often cheaper than coveralls.

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4. Proper footwear is also important when working in the shop. Open toed footwear must NEVER be worn in the shop. Leather shoes with steel reinforced toes provide excellent protection. Leather is fire resistant and tough enough to resist the impact of many falling objects.
 - a. Rubber boots are required when working in water or when using pesticides. These boots are also ideal when doing concrete work due to their resistance to water and the ease with which they can be cleaned.
5. Gloves can be both protective devices and safety hazards in the shop. Gloves are used to keep the hands warm and to protect them from abrasion, heat, and chemicals. Gloves are excellent protection when using tools that emit flying debris, such as grinders and chainsaws. Caution should be taken when wearing gloves around moving parts. Gloves can easily be pulled into the machines and serious injury can result. It is not advisable to wear gloves where the hands will come in close contact with the moving parts of a machine.
6. Ear plugs or earmuffs are ideal when working around noisy machinery. Some machines, such as planers, emit a very high pitched sound that can damage the inner ear if protection is not worn.
7. Masks and respirators should be worn when using machines that produce large amounts of dust. Application of chemicals also requires the use of a respirator.

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Group 4

E. Uncontrolled fires in an agricultural mechanics shop can spread very rapidly, causing death, serious injury, and the destruction of property and equipment. Since all shops contain flammable materials, students should be informed of the causes of fires, methods of preventing fires, and the extinguishing of fires, as well as emergency procedures when a fire occurs.

1. Causes of Fires in the Shop

a. Fire occurs only when three factors are combined. These are fuel, oxygen, and heat. The absence of any one of these factors will prevent a fire.

1) Fuel consists of any combustible material. Any common material in the shop from old rags to grease and oil can act as the combustible. All combustible materials must be properly stored to prevent the dangers of fire.

2) Heat is required to ignite the combustible. Heat can be provided from many sources in the shop including open flames, electric sparks, or high friction heat.

3) Oxygen must be present in order for fuels to burn. The absence of oxygen will prevent a fire or put one out. Storing combustibles in airtight conditions will prevent fires. Care must be taken when using airtight combustible containers to avoid the buildup of high pressure. A puncture to the container with all three factors present can cause a serious explosion.

2. Preventing Fires in the Shop

a. Familiarizing oneself with the factors involved in starting a fire can help lead to better prevention. The absence of any one of the factors described above will prevent a fire from starting, or put one out if it has already started. There are many safety precautions that can be taken in the shop to prevent the combination of fuel, heat, and oxygen.

1) Store fuels only in approved containers. These containers should be made of metal and ideally equipped with doors that seal automatically in the presence of fire.

2) Store fuels in a separate area from other flammable materials such as wood and paper.

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- 3) Keep the shop environment at a cool temperature with all areas being well below the combustion temperature of all materials. Most chemicals and liquid fuels will have data which label the combustion temperature and safe storage temperature range.
- 4) Use fires only in areas that are designated safe for that purpose. (Forge, cutting torch, etc.)

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Group 5

3. Extinguishing Fires in the Shop

a. Fires are extinguished by removing any one of the three factors listed above. Different types of fires require different methods to extinguish them. Fires are categorized according to the type of fuel they burn. These classes of fires must be known in order to correctly extinguish all types of fires in the shop.

- 1) Class A fires are termed as ordinary combustibles. These fires burn fuels such as wood, paper, and trash; they do not involve any liquid fuel or electricity. Such fires can easily be contained by smothering them, using water to cool them, or by removing the unburned fuel and letting the fire burn itself out.
- 2) Class B fires are those that utilize flammable liquids for fuel. These fires are more difficult to extinguish and can be much more dangerous than class A fires.
- 3) Class C fires involve electrical equipment. This type of fire not only has the risk of burning and smoke inhalation, but also of electrocution.
- 4) Class D fires involve combustible metals. Very few metals will burn. Burning metals are very difficult to put out and require a Class D fire extinguisher in order to quench them.

b. The fire classifications are based on how cheaply and easily the fires can be extinguished. Class A fires can be extinguished safely using water. Water is the cheapest and easiest fire retardant to apply. In some situations, such as in electrical fires, water is not safe to use due to the chance of electrocution.

c. Fire extinguishers vary as do the types of fires. Each fire extinguisher is labeled with the types of fires it can put out. Symbols are used to indicate each type of fire extinguisher.

- 1) The green triangle is used to designate fire extinguishers that can put out ordinary combustible fires.
- 2) A red square is designates Class B fires which involve flammable liquids.
- 3) Electrical equipment fires can be extinguished with a fire extinguisher labeled with a C surrounded by a blue circle.

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- 4) Combustible metal fires are extinguished by a fire extinguisher that has a yellow star symbol with a D in the center.
- d. Fire extinguishers have a variety of different ingredients, depending on their capabilities.
- 1) Extinguishers containing water that are powered by pump or gas pressure can be used on Class A fires only.
 - 2) Carbon dioxide gas extinguishers are useful on both Class B and Class C fires.
 - 3) Dry chemical extinguishers can be used on Class A, B, and C fires.
 - 4) Fire extinguishers that emit foam are to be used on Class A and Class B fires only.
 - 5) Class D fire extinguishers contain special chemicals that can extinguish combustible metal fires.
- e. Fire extinguishers should not be used on humans and animals unless absolutely necessary. A blanket is used to smother fires on humans and animals.
- f. Using a fire extinguisher involves three easy steps.
- 1) Locate the fire extinguisher and remove it from its holder. Hold the fire extinguisher upright and pull the ring pin.
 - 2) Start back ten feet from the flames and aim the nozzle at the BASE of the fire.
 - 3) Squeeze the lever and sweep the nozzle in a side-to-side motion across the base of the fire.
- g. Shop students should have a lesson on the types of fires, the capabilities of the fire extinguishers in the shop, the location of the fire extinguishers, and the methods of using them.
- h. Each fire extinguisher should be checked at least once a month to assure that it will be usable in case of an emergency.

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Group 6

- F. Regardless of the safety precautions taken by the instructor, accidents continue to occur in the shop. Most of these accidents can be prevented if each student develops safe working habits. Many simple shop rules can lead toward the development of a sense of the importance of safe shop procedures.
1. Discourage horseplay in the shop. Shop work requires the undivided attention of the worker if a task is to be performed safely for everyone in the shop. 'Playing around' distracts from this safe attention.
 2. Have students report any hazard to the instructor immediately. Many accidents occur because students believe that the instructor already knows about a hazard.
 3. Have each student read the safety signs on equipment before using it and warning labels on all chemicals or materials to be used.
 4. Have a safety orientation with the students regarding the placement of safety equipment, the school's safety procedures and each student's responsibility in the event of an accident.
 5. Enforce all shop safety regulations at all times. Leniency often leads to ignorance of the rules when it comes to shop safety.
- G. Safety Signs
1. Post safety signs on each piece of equipment and at the storage area for portable tools. (Signs are provided in this chapter)
 2. Students will understand all safety procedures on the signs before using the equipment.
 3. Students will follow all the safety rules posted on the signs while using the equipment.
- H. Material Safety Data Sheets (MSD)
1. In complying with state and federal laws, Ag Departments are required to keep a MSD sheet on any hazardous material including; used oil, paint thinner, etc.
 2. Check with your local school district, each district might have a different policy.

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