Unit B: Safety in Agricultural Mechanics

Lesson 1: Identifying Hazards in Agricultural Mechanics

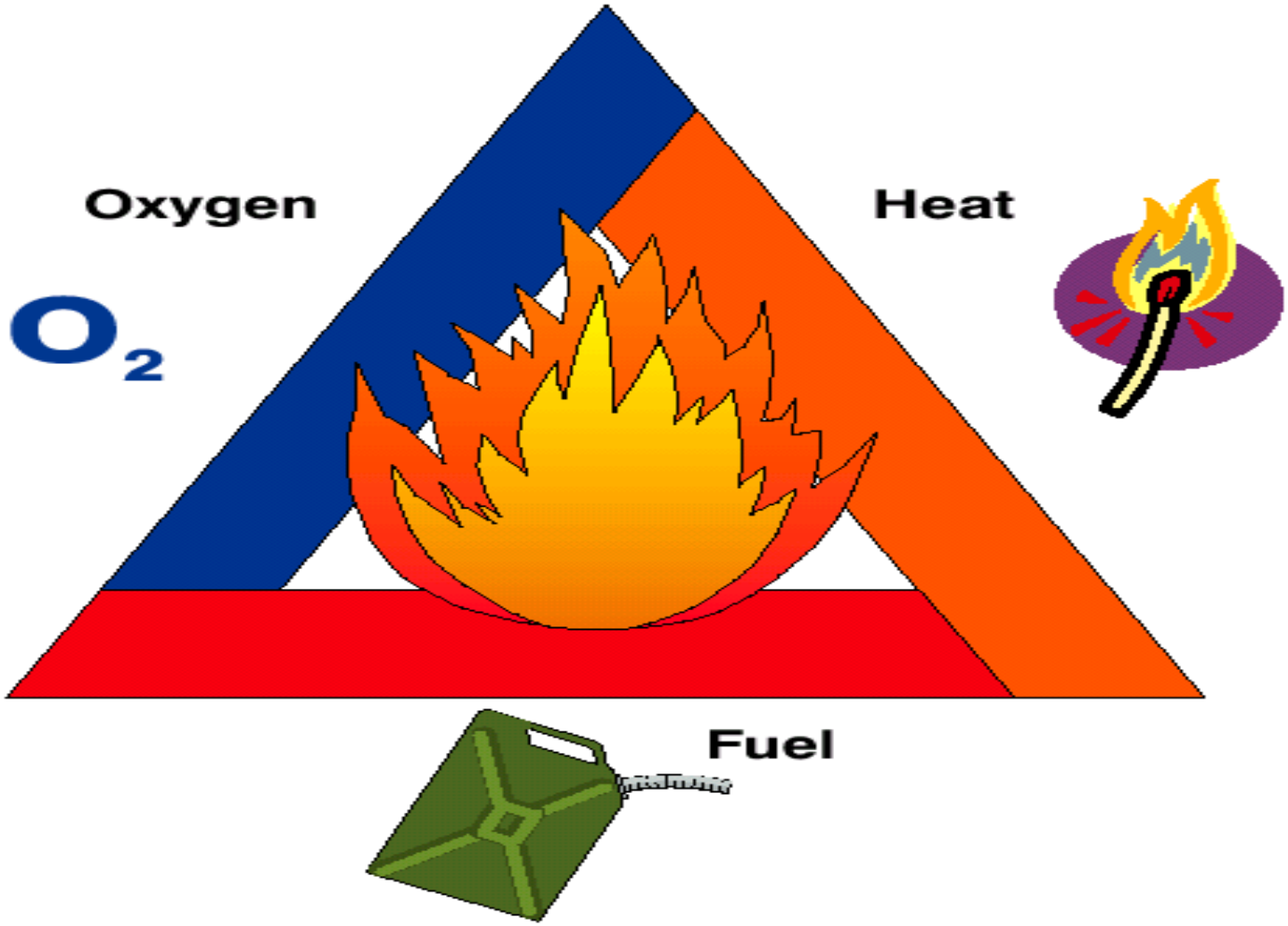
Terms

- Combustible metals
- Fire triangle
- Flammable liquids
- Fuel
- Heat
- Ordinary combustible
- Oxygen

What are the three conditions necessary for combustion?

- Fuel
- Heat
- Oxygen

FIRE TRIANGLE



If any one of the three components is missing, a fire cannot be started. With the removal of any one component, the fire will be extinguished.

(Courtesy, Interstate Publishers, Inc.)

Fuel

- Fuel is any combustible material that will burn.
- Common fuels are gasoline, diesel fuel, wood, paper, and propane.
- Most materials will burn if they are made hot enough in the presence of oxygen.

Heat

- Heat simply refers to a type of energy that causes the temperature to rise.
- If the temperature of a room is changed from 10 degrees to 20 degrees, it is done by using heat.

Oxygen

- Oxygen is a gas in the atmosphere.
- It is not a fuel, but must be present for fuels to burn.
- Oxygen is nearly always present except in airtight conditions.
- This fact is important to remember in fire safety and control.

How can fires be prevented in agricultural mechanics?

- The prevention of fire goes hand-in-hand with safe use of equipment and efficient management of work areas.
- Proper storage of materials decreases the chance of fire and keeps materials readily available when needed.
- Clean work areas also decrease the chance of a fire.

How can fires be prevented in agricultural mechanics?

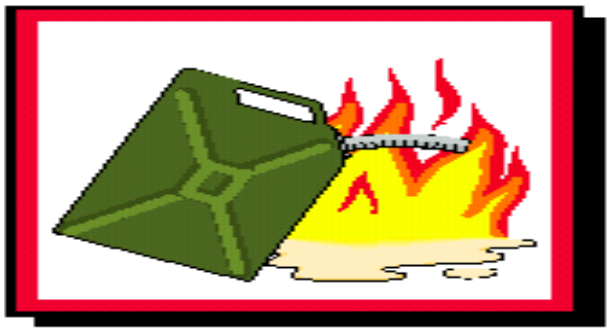
- Store fuels in approved containers.
- Store fuels away from other materials that burn easily.
- Store materials in areas that are cooler than their combustion temperature.
- Use fire only in safe surroundings.
- Put out fires by removing one or more elements in the fire triangle.

FOUR CLASSES OF FIRE

A

ORDINARY
COMBUSTIBLES

B

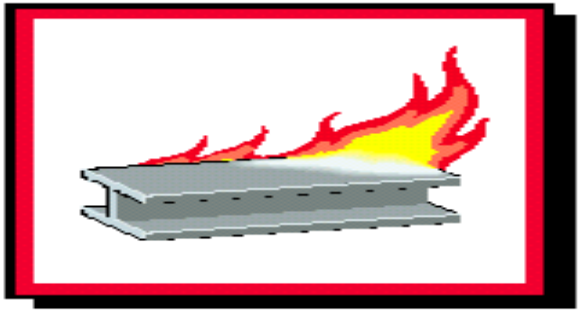


FLAMMABLE
LIQUIDS

C

ELECTRICAL
EQUIPMENT

D



COMBUSTIBLE
METALS

The different classes of fires and different types of fire extinguishers?

- Class A - Ordinary Combustibles.
  - Ordinary combustibles include wood, papers, and trash.
  - Class A combustibles do not include any item in the presence of electricity or any type of liquid.

The different classes of fires and different types of fire extinguishers?

- Class B - Flammable Liquids.
  - Flammable liquids include fuels, greases, paints, and other liquids as long as they are not in the presence of electricity.

The different classes of fires and different types of fire extinguishers?

- Class C - Electrical Equipment.
  - Class C fires involve the presence of electricity.

The different classes of fires and different types of fire extinguishers?

- Class D - Combustible Metals.
  - Combustible metals are metals that burn.
  - Burning metals are very difficult to extinguish. Only Class D extinguishers will work on burning metals.

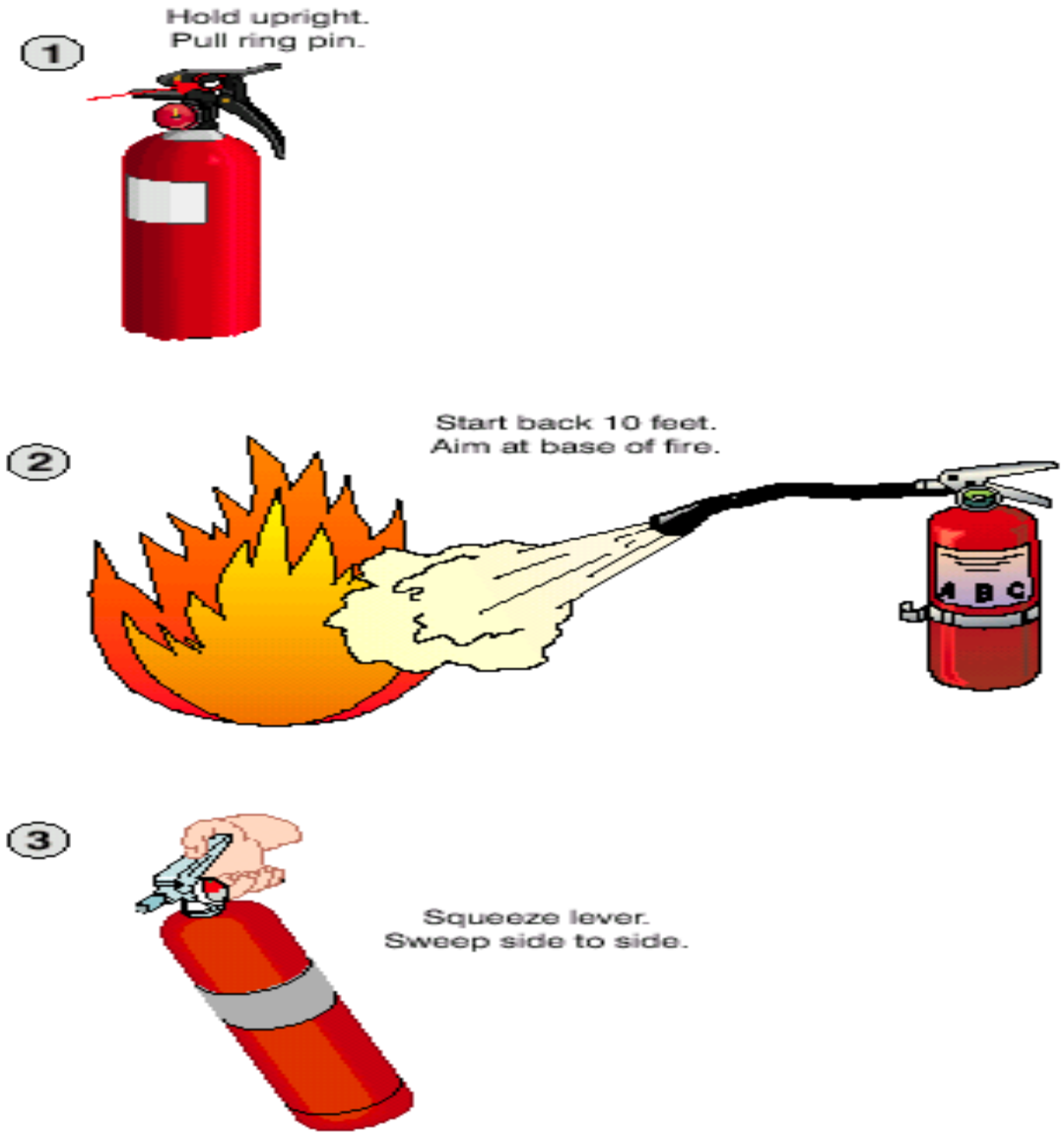
Common types of extinguishers

- 1. Water with pump or gas pressure used for Class A fires.
- 2. Carbon dioxide gas used for Class B and C fires.
- 3. Dry chemical used for Class A, B, and C fires.

How do you properly use a fire extinguisher?

- Hold the extinguisher upright and pull blocking pin.
- Move within 1.5 to 3 meters of the fire.
- Aim the nozzle of the extinguisher toward the base of the fire.
- Squeeze lever and discharge contents using a side to side sweeping motion.
- Have extinguishers serviced after each use.

BASIC STEPS FOR PROPER USE OF A FIRE EXTINGUISHER



Monthly Fire Extinguisher Check

- Make sure the proper class of fire extinguisher is in the area of fire class risk.
- Verify that the extinguisher is in its designated place.
- Make sure there is no obvious mechanical damage or corrosive condition to prevent safe reliable operation.

Monthly Fire Extinguisher Check

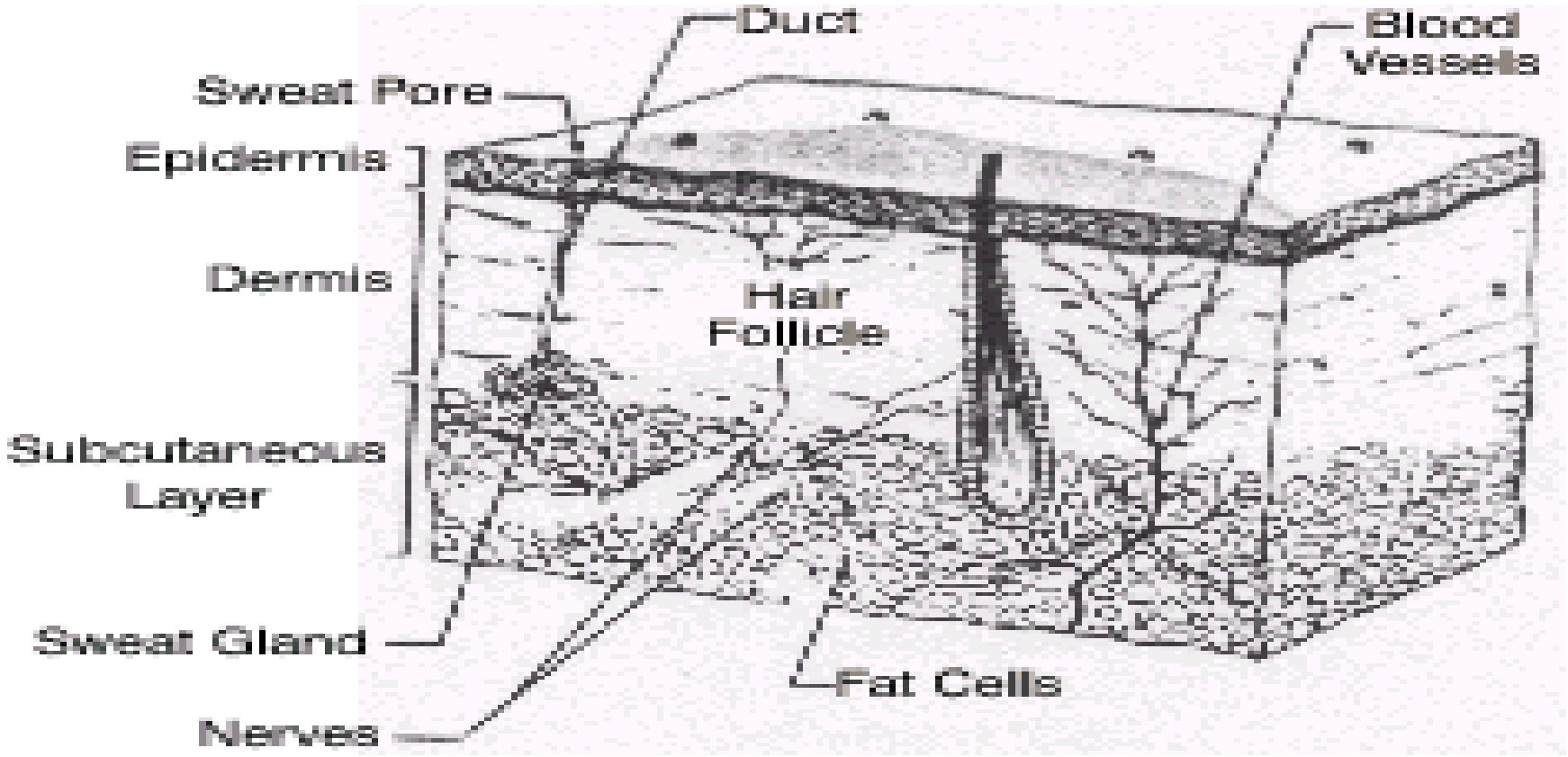
- Examine visual indicators (safety seals, pressure indicators, gauges) to make certain the extinguisher has not been used or tampered with.
- Check the nameplate for readability and lift or weigh the extinguisher to provide reasonable assurance that the extinguisher is fully charged.

Monthly Fire Extinguisher Check

- Examine the nozzle opening for obstruction.
  - If the extinguisher is equipped with a shut-off type nozzle at the end of the hose, check the handle for free movement.

The different types of burns that can occur in agricultural mechanics?

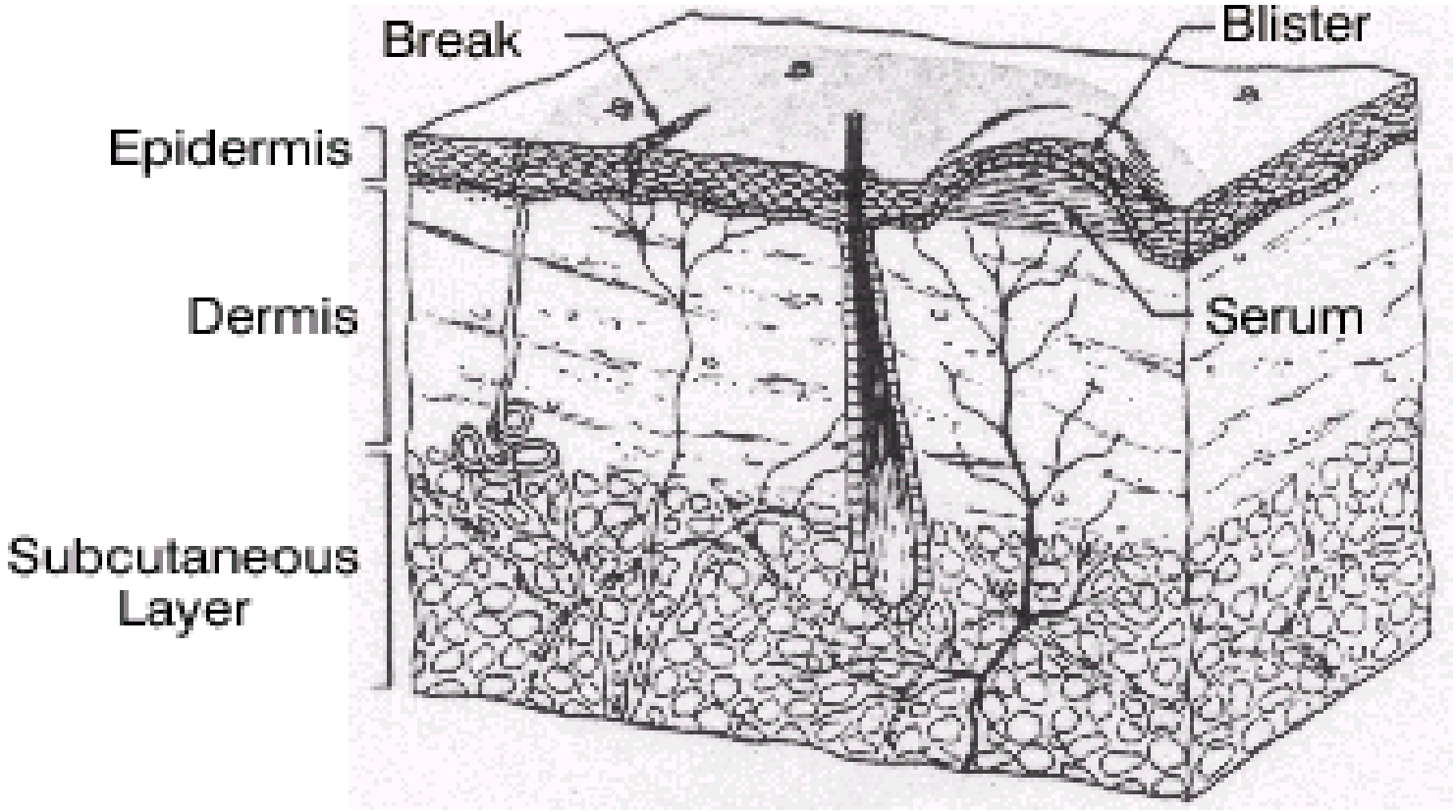
- First-degree burns - These occur when the surface of the skin is reddish in color, tender and painful and do not involve any broken skin.
  - This should be treated by placing the burn area under cold water or applying a cold compress.
  - Then cover the area with non-fluffy sterile or clean bandages.
  - Do not apply butter or grease.



First-degree burn—only the skin surface (epidermis) is affected.

The different types of burns that can occur in agricultural mechanics?

- Second-degree burns - This is when the surface of the skin is severely damaged, resulting in the formation of blisters and possible breaks in the skin.
  - To treat a second degree burn, first put burn area under cold water or apply cold compress until the pain decreases.
  - Then cover dried area with clean bandage to prevent infection. Seek medical attention. Do not apply ointments, spray, antiseptics, or home remedies



Second-degree burn—the epidermal layer is damaged, forming blisters or shallow breaks.

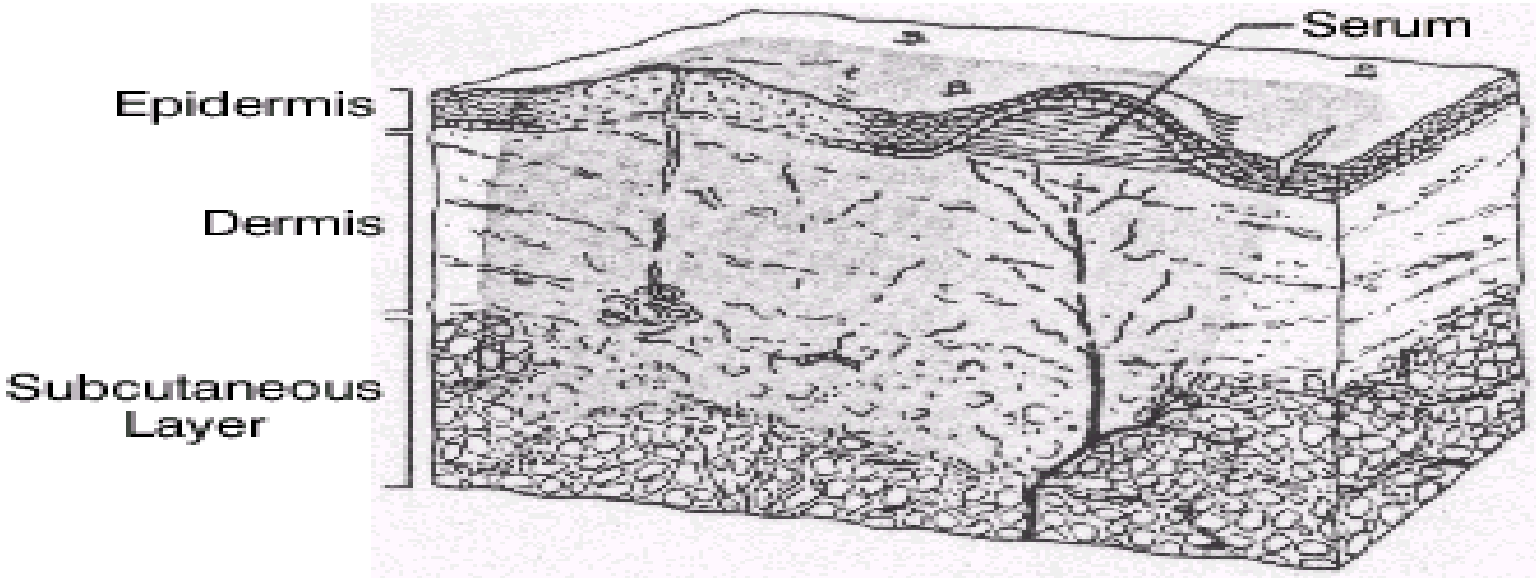
The different types of burns that can occur in agricultural mechanics?

- Third-degree burns - This has occurred when the surface of the skin and possibly the tissue below the skin appear white or charred.
  - Little pain is present because nerve endings have been destroyed.
  - Do not remove any clothes that are stuck to the burn.
  - Do not put ice water or ice on the burns.

Third Degree Burns

- Do not apply ointments, spray, antiseptics, or home remedies.
- Place cold cloth or cool (not ice) water on burns.
- Cover burned area with thick, sterile dressings.
- Seek medical assistance immediately.

Third Degree Burns



Third-degree burn—the epidermis, dermis, and subcutaneous layers of tissue are destroyed.

Review and Summary

- What are the three conditions necessary for combustion?
- List several ways to prevent fires in agricultural mechanics.
- What are the different classes of fires and the different types of fire extinguishers.
- Describe the proper use of fire extinguishers.
- What are the three different types of burns that can occur in agricultural mechanics?