



Republic of the Philippines
Department of Education
National Capital Region
Schools Division Office – Muntinlupa City

SPECIAL PROGRAM FOR TECHNICAL VOCATIONAL EDUCATION [SPTVE]
SHIELDED METAL ARC WELDING 9
Quarter 3: Week 8

I. **Topic:** Perform Safety Practices in Welding Operation

II. **Objectives:**

1. identify welding safety practices.
2. draw and label the different personal protective equipment
3. appreciate the importance of welding safety practices.

III. **Brief Introduction of the Lesson:**

Arc welding is safe when sufficient measures are taken to protect the welder from potential hazards. When these measures are overlooked or ignored, welders can encounter such dangers as: electric shock, overexposure to radiation, fumes and gases, fire, or explosion, any of which can result in fatal injuries.

General Arc Welding Safety:

- Before starting any arc welding operation, a complete inspection of the welder should be made.
- Read all warning labels and instructions manuals.
- Remove all potential fire hazards from the welding area.
- Always have a fire extinguisher ready for immediate use.
- Equip welding machines with power disconnect switches which can be shut off quickly.
- The power to the machine should be disconnected before making repairs.
- Proper grounding of welding machines is essential.
- Electrode holders should not be used if they have loose cable connections, defective jaws, or poor insulation.
- An arc should not be struck if someone without proper eye protection is nearby.

Personal Protective Equipment:

- Infrared radiation is a cause of retinal burning and cataracts. Protect your eyes and face with a welding helmet properly fitted and with the proper grade of filter plate.
- Protect your body from welding spatter and arc flash with protective clothing. Such as:
 - Wool clothing
 - Flame-proof apron
 - Gloves
- Properly fitted clothing that is not frayed or worn.
- Shirts should have long sleeves.
- Trousers should be straight-legged and covering shoes when arc welding.
- Fire resistant cape or shoulder covers are needed for overhead work.
- Check protective clothing equipment before each use to make sure it is in good condition.
- Keep clothes free of grease and oil.

Proper Ventilation





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Be sure there is adequate ventilation available when welding in confined areas or where there are barriers to air movement. Natural drafts, fans and positioning of the head can help keep fumes away from the welder's face.

Ventilation is sufficient if:

- The room or welding area contains at least 10,000 cubic feet for each welder.
- The ceiling height is not less than 16 feet.
- Cross ventilation is not blocked by partitions, equipment, or other structural barriers.
- Welding is not done in a confined space.
- If these space requirements are not met then the area needs to be equipped with mechanical ventilating equipment that exhausts at least 2000 cfm of air for each welder, except where local exhaust hoods or booths, or air-line respirators are used.

Avoiding Electrical Shock

Electrical shock can kill. To prevent electrical shock:

- Use well insulated electrode holders and cables.
- Make sure welding cables are dry and free of grease and oil.
- Keep welding cables away from power supply cables.
- Wear dry hole-free gloves.
- Clothing should also be dry.
- Insulate the welder from the ground by using dry insulation, such as a rubber mat or dry wood.
- Ground frames of welding units.
- Never change electrodes with bare hands or wet gloves.

IV. Activities:

Activity 1: Directions: Draw five [5] Personal Protective Equipment. Label it and write the functions of each. Use long bond paper for your drawing.

Name of PPE	Illustration	Function/s
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Activity 2: Directions: Create a slogan about welding safety practices. Use bond paper for your answer.

<p style="text-align: center;">WELDING SAFETY PRACTICES</p>
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Activity 3: Directions: Write a reflection about the importance of safety practices in welding. Use separate paper for your answer.





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V. Assessment:

Directions: Read the statements carefully and write SAFE if the statement ensures safety or UNSAFE if it does not. Use separate paper for your answer.

1. Weld without a helmet.
2. Weld while standing on wet ground or in water.
3. Weld with gloves.
4. Weld without safety glasses when wearing a helmet.
5. Wear only t-shirt in welding.
6. Chip slag without safety glasses.
7. Change electrode with your bare hands.
8. Leave hot metal lying where someone may come in contact with it.
9. Repair hoses with tape.
10. Light the torch with a match or another torch.

VI. Reflection:

Why do students need to learn safety practices prior to welding?

Can they able to follow welding safety protocols before, during and after welding operation?

What are the benefits and importance of welding safety practices?





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