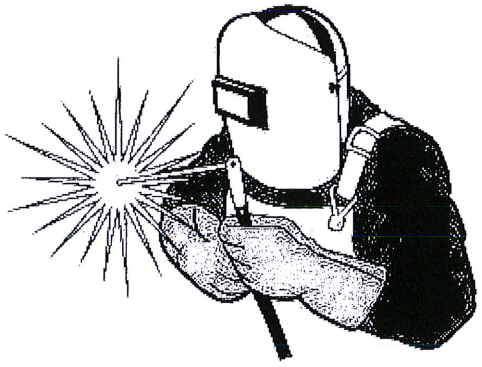
Welding 10

PART I



Student Learning Guide

Student Name:_____

Activities Time Line

Student Name:_____

Class	Activity Number	Activity Name
1	1	Shielded Metal Arc Welding Questions
2	1	Shielded Metal Arc Welding Questions
	Check Point Teacher Signature:_____	
3	2 VIDEO	Basics of Stick Welding: Teach Yourself Stick Welding (Part 1 of 5)
	3	Striking an Arc
	Check Point Teacher Signature:_____	
4-6	4 VIDEO	Basics of Stick Welding: Teach Yourself Stick Welding (Part 2 of 5)
	5	Fillet Welds and Padding
	Check Point Teacher Signature:_____	

7-8	6 VIDEO	Basics of Stick Welding: Teach Yourself Stick Welding (Part 3 of 5)	
	7	Fillet Welds and Padding with variety of electrodes	
	Check Point Teacher Signature:_____		
9	8	Fillet Butt Joints	
	Check Point Teacher Signature:_____		
10	9	Fillet Lap Joints	
	Check Point Teacher Signature:_____		
11	10	Open Corner Groove Joints	
	Check Point Teacher Signature:_____		
12-15	11	Die Project	
	Check Point Teacher Signature:_____		

*All videos can be found on youtube.com at the Chuckee2009 channel

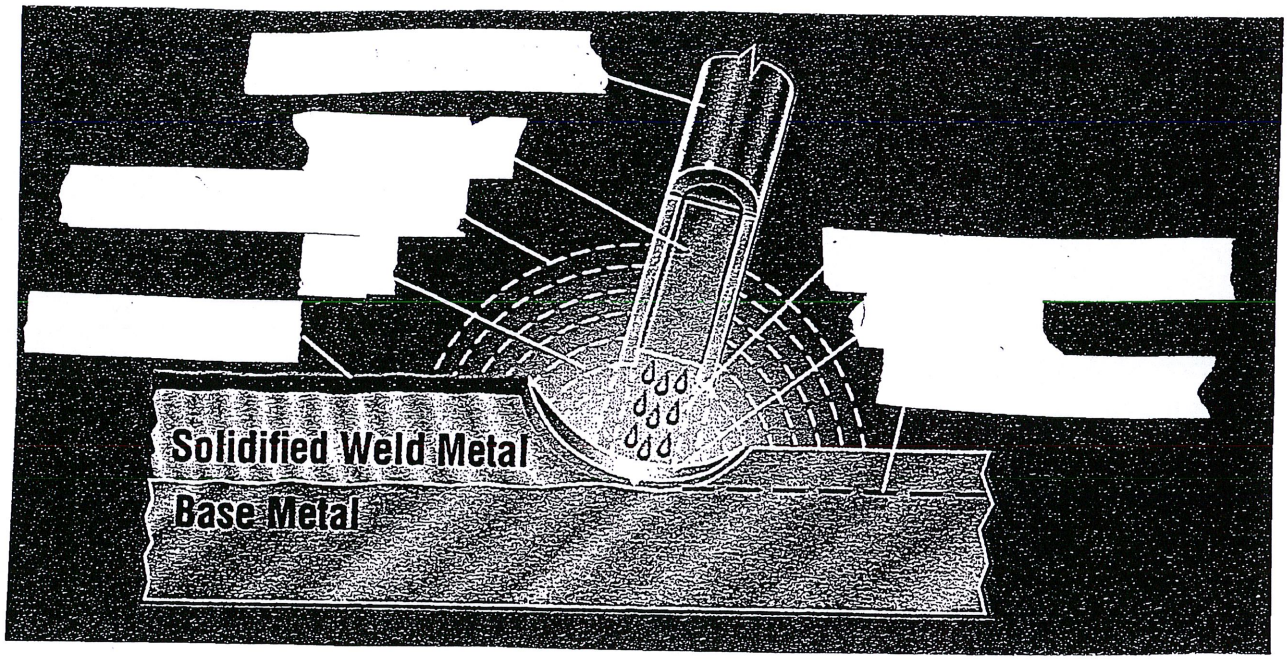
Shielded Metal Arc Welding

Refer to: Topic 6. Miller Process Training Series "Shielded Metal Arc Welding"

Principles of Operation

1. How much heat does the electric arc between the electrode and the base metal create?

2. Label the following diagram:



SMAW Equipment

3. What are the two types of power sources used in the electric arc welding process, and what king of power supply is used for SMAW operations?

4. Where is AC welding most commonly found, and what are its attributes?

5. When is DC welding preferred?

6. What kind of power source is needed for a machine that can do both AC and DC processes?

Welding Current

7. Why is direct current welding preferred for SMAW processes?

8. What do the following acronyms stand for: DCEP and DCEN:

9. If an AC SMAW power source generally produces more spatter and less penetration, why is it still commonly used?

Arc Blow

10. What is arc blow?

Setting Current

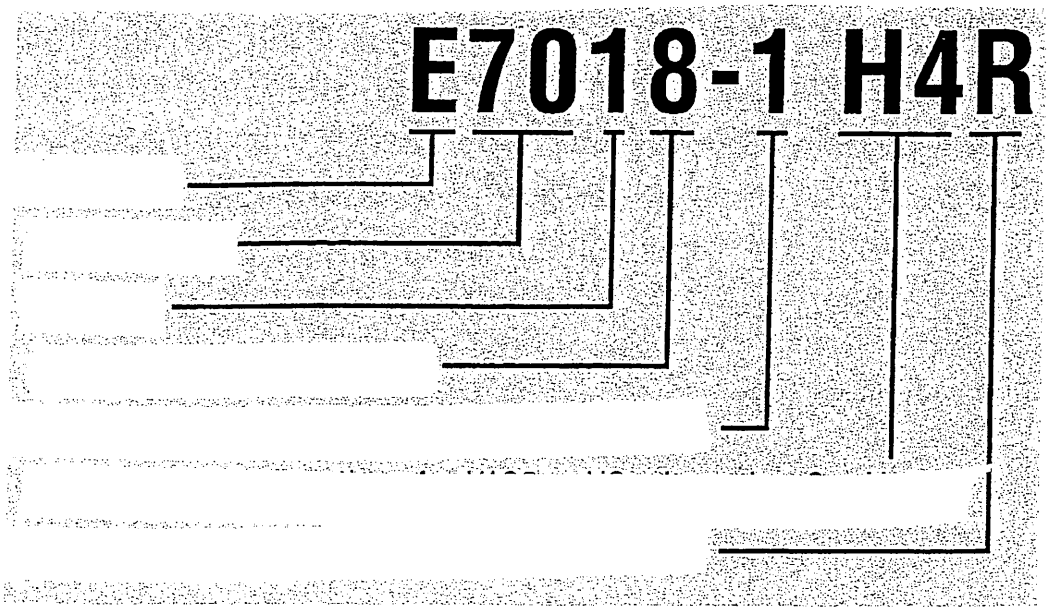
11. What factors must the operator keep in mind when setting the current?

SMAW Electrodes

12. What is the purpose of the flux coating around the core wire?

13. What is the AWS classification system for steel electrodes is based on?

14. Label the following chart:



Essentials of Good Welding Technique

15. What is the correct work angle for making fillet welds?

16. What is a good "rule of thumb" for determining arc length?

Welding Joint Types

17. What do the following refer to: 1F, 2F, 3F, and 4F?

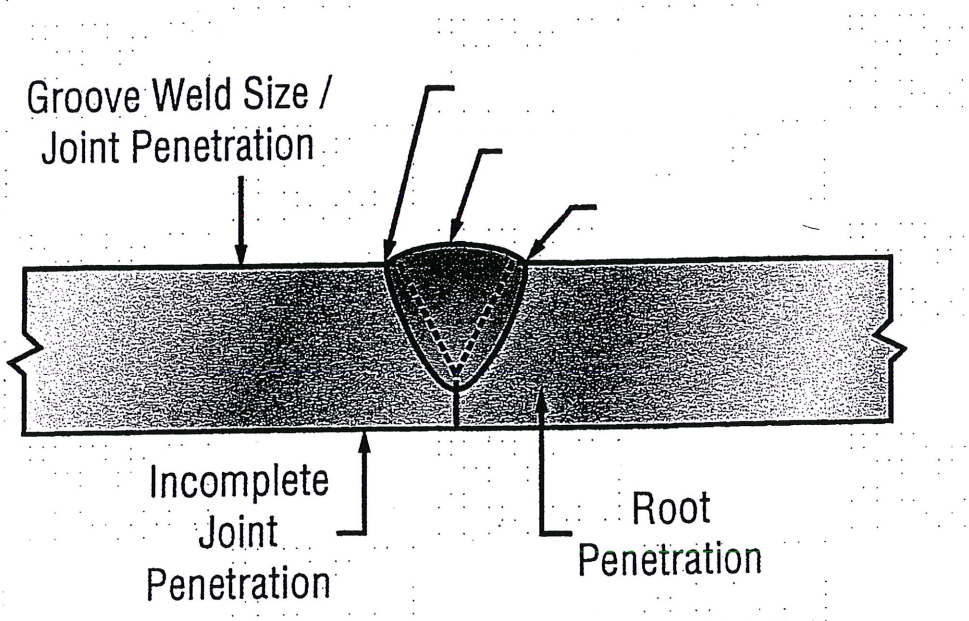
18. What are the 5 main types of joints?

Weld Types and Positions

19. What is a fillet weld?

20. What is a groove weld?

21. Label the following diagram:



22. What do the following refer to: 1G, 2G, 3G, and 4G?

Welding 10 Name: _____

Shielded Metal Arc Welding *TEST*

Refer to: Topic 6. Miller Process Training Series "Shielded Metal Arc Welding"

1. How much head is created in the arc process?
   - a. 10 000 C
   - b. 5 000 C
   - c. 1 000 C
   - d. 500 C

2. What is the most commonly used type of SMAW process?
   - a. Direct Current Electrode Positive
   - b. Alternating Current
   - c. Direct Current Electrode Negative
   - d. They are all used equally as there is no real difference between them

3. What is the purpose of the flux coating around the core wire on an electrode?
   - a. provides atmospheric protection
   - b. stabilizes the arc
   - c. provides protective slag
   - d. all of the above

4. What is the AWS classification system for steel electrodes based on?
   - a. strength of weld metal
   - b. position the electrode is to be used
   - c. the type of material used to make the flux coating
   - d. all of the above

5. What is the correct work angle for producing fillet welds?
   - a. 10°
   - b. 20°
   - c. 90°
   - d. 180°

6. What are the five main types of joints?
   - a. butt, corner, square, angled, soft
   - b. butt, edge, Z-groove, L-groove, J-groove
   - c. butt, corner, T, lap, edge
   - d. Corner, round, square, triangle, creamy

7. What is a fillet weld?
   - a. welds made when joining any two types of metal
   - b. welds made on pieces that are at a 90° angle
   - c. welds made on a groove between the two pieces of metal
   - d. welds that are grooved into the metal

8. What does root penetration refer to?
   - a. The depth of a weld into the base metal
   - b. The heat produces on the base metal during the welding process
   - c. The overall size of the weld
   - d. The amount of slag on a weld

9. If you were asked to produce a 1G weld, what would it look like?
   - a. a groove weld in the horizontal position
   - b. a groove weld in the overhead position
   - c. a fillet weld in the flat position
   - d. a groove weld in the flat position

10. Why is the SMAW process at times used instead of the GMAW process?
   - a. it's cost effective
   - b. quick set up
   - c. easily used outdoors
   - d. all of the above