Franklin County School District

School Closure Packet

Week Five: April 20-24

Career & Technical Center

Please find the pages that are for your program.

Name:

_____

Career-Tech Teacher:

_____

Contemporary Health 4th and 5th Periods
Week of April 20th – April 24th

Log into your ICEV account and complete the following assignments as you watch the video or Powerpoint:

1) Family Life Cycle - CC
- Family Life Cycle – Student Notes and Assessment
- Family Life Cycle – Vocabulary

2) Human Development: Adulthood – CC
- Human Development: Adulthood – Emerging Adulthood – Student Notes & Assessment I
- Human Development: Adulthood – Early Adulthood – Student Notes & Assessment II
- Human Development: Adulthood – Middle Adulthood – Student Notes & Assessment III
- Human Development: Adulthood – Late Adulthood – Student Notes & Assessment IV
- Human Development: Adulthood – Vocabulary & Assessment V

Resource Management 1st, 2nd, and 3rd Periods
Week of April 20th – April 24th

Log into your ICEV account and complete the following assignments as you watch the video or Powerpoint:

1) Cost of Education & Training – CC – New Item
- Cost of Education & Training – Education Options – Student Notes and Assessment I
- Cost of Education & Training – Cost & Financing – Student Notes and Assessment II
- Cost of Education & Training – Paying it Back – Student Notes and Assessment III
- Cost of Education & Training – Vocabulary and Assessment IV

Ag

4/3/2020

U.S. dairy farmers dump milk as pandemic upends food markets

CHICAGO (Reuters) - Dairy farmer Jason Leedle felt his stomach churn when he got the call on Tuesday evening.

"We need you to start dumping your milk," said his contact from Dairy Farmers of America (DFA), the largest U.S. dairy cooperative.

Despite strong demand for basic foods like dairy products amid the coronavirus pandemic, the milk supply chain has seen a host of disruptions that are preventing dairy farmers from getting their products to market.

Mass closures of restaurants and schools have forced a sudden shift from those wholesale food-service markets to retail grocery stores, creating logistical and packaging nightmares for plants processing milk, butter and cheese. Trucking companies that haul dairy products are scrambling to get enough drivers as some who fear the virus have stopped working. And sales to major dairy export markets have dried up as the food-service sector largely shuts down globally.

The dairy industry's woes signal broader problems in the global food supply chain, according to farmers, agricultural economists and food distributors. The dairy business got hit harder and earlier than other agricultural commodities because the products are highly perishable - milk can't be frozen, like meat, or stuck in a silo, like grain.

Other food sectors, however, are also seeing disruptions worldwide as travel restrictions are limiting the workforce needed to plant, harvest and distribute fruits and vegetables, and a shortage of refrigerated containers and truck drivers have slowed the shipment of staples such as meat and grains in some places.

Leedle could likely sell his milk if he could get it to market. Dairy products in grocery stores have been in high demand as consumers stay home during the pandemic, though panic buying may be slowing. Earlier this week, a local market told Leedle's wife she could buy only two dairy products total per shopping trip as retailers nationwide ration many high-demand products.

"It's just gut-wrenching," said Leedle, 36, as he stood inside his barn, with cows lowing softly as the animals were giving milk that would be funneled directly into a manure pit. "All I can see is that line going down the drain."

Leedle has dumped 4,700 gallons of milk from his 480 cows each day since Tuesday. The 7,500-member DFA told Reuters it has asked some other farmers in the cooperative to do the same but did not say how many.

Dairy cooperatives oversee milk marketing for all of their members and handle shipping logistics. Leedle said he will be paid for the milk he and other farmers are dumping, but the payments for all cooperative members will take a hit from the lost revenues.

Land O'Lakes Inc., another cooperative, has also warned its members they may have to dump milk. Another cooperative, Wisconsin-based Foremost Farms USA, was even more grim.

"Now is the time to consider a little extra culling of your herds," the cooperative said in a March 17 letter to members. "We believe the ability to pick up and process your milk could be compromised."

The cooperative, which also owns butter and cheese processing plants, said milk-dumping might also be on the horizon.

The dumping comes even as consumer demand for dairy has soared. Panic buying has left grocery store shelves nearly empty in recent weeks amid business shutdowns and quarantines nationwide. Retail purchases of milk rose nearly 53% for the week ended March 21, while butter sales surged more than 127% and cheese rose more than 84%, compared to the same period a year earlier, according to Nielsen data.

Grocers have been charging consumers more, too. The average retail price of cow's milk was up 11.2% for the week ended March 21, compared to a year earlier, the Nielsen data shows.

RESTAURANT CLOSURES DISRUPT SUPPLY CHAINS

Finding enough truck drivers is part of the challenge. Agriculture groups have lobbied states to increase truck weight limits on highways to enable more food to be delivered.

Dean Foods Co, which has been starting some plant shifts earlier and running later, is offering $1,000 sign-on bonuses for drivers with dairy experience as it struggles to fill 74 open positions, a company spokeswoman said.

Another major problem: The sudden shift in demand from restaurants - now closing en masse - to grocery stores creates severe logistical challenges. Suppliers struggle to make the shift from wholesale packaging for restaurants to preparing retail products for stores.

"About half of U.S. consumers' food budget was spent on restaurants, and we've shut that spigot off," said Matt Gould, editor at trade publication Dairy & Food Market Analyst.

It would take millions of dollars, for instance, to install new equipment to switch a plant from making one type of cheese - such as barrel cheese used to make processed slices for fast-food restaurants - to producing cheddar wedges for grocers, said dairy analysts. Even switching from bagging 10 lb bulk bags of shredded cheddar for food service to 8 oz bags for retail stores would require costly new packaging robots and labeling machinery.

Schreiber Foods Inc, one of the country's top dairy product manufacturers and food distributors, is cutting hours for workers at its dairy processing plants that normally supply the restaurant industry and adding staff to plants that stock the U.S. retail market, said spokesman Andrew Tobisch.

As of last week, the plants serving retail were bottlenecked.

"We've almost had too many trucks showing up at some of our plants," Tobisch said. "The deliveries get backlogged and the drivers are having to wait longer and longer."

Trucks heading to restaurants, meanwhile, are getting sent back. Sartori Cheese in Plymouth, Wisconsin, has had restaurant customers refuse shipments of food they had ordered, said president Jeff Schwager. Some restaurant customers have called, asking if they can return orders delivered weeks ago. But processors can't take the cheese back and resell it - or even donate it - because they can't ensure it has been safely handled, Schwager said.

Some of Sartori's grocery retailers are telling Schwager they are closing their gourmet cheese counters with their displays of huge cheese wheels, in favor of pre-packed, grab-and-go wedges. The stores want to redeploy those cheese counter crews to stock shelves and handle other tasks, Schwager said.

That means Sartori Cheese will need far more film wrap of a different size that is now in short supply as demand skyrockets.

Meat producers and fruit-and-vegetable farmers are also struggling with the shift from wholesale to retail, causing plentiful products to run short on grocery store shelves.

Paul Sproule, a potato farmer in North Dakota, said processors who churn out french fries and other restaurant products have stopped buying. Most can't pivot to retail because they don't have customer-facing packaging or relationships with stores for shelf space.

FILLING THE GAPS

In rural communities, smaller food retailers such as bakeries are starting to stock products that have been running short at grocery stories. In the farm town of Rossville, Indiana, local baker Sandra Hufford's picked up grocery products from a food distributor, including butter, cartons of cottage cheese and gallons of milk.

"They told me that they had a lot of customers not wanting to pay right now, and they needed cash-paying customers," said Hufford, who owns the Flour Mill Bakery.

Hufford stocked up her bakery's refrigerated case and posted what was available for pickup and delivery on the shop's Facebook page. Word spread. Now, customers from as far as Indianapolis – 60 miles away – are placing orders and driving out to pick up groceries.

- How will this affect future milk prices?
- How will this affect milk producers in the future?
- What other agricultural industries are affected in a similar ways?

Health Science 1 Assignments for Week 5 April 20th-24th

1. Go to aeseduction.com and choose anatomy and physiology
2. Choose Unit 12 Endocrine System (lesson for this week)
3. Read or watch lesson 1 PowerPoint endocrine system
4. Read or watch lesson 2 PowerPoint diseases and disorders
5. The student worksheet is available for you to work online and to help you learn how to label the endocrine system organs.
6. Take the quiz at the end of the endocrine system. I will be able to see your grades.
7. Remember you will be given credit for all work.
8. Contact me through remind or by email at akent@fcsd.k12.ms.us if you need anything.

Health Science 2 Assignments for Week 5 April 20th through April 24th

1. Go to aeseducation.com and choose nutrition and elimination
2. Choose unit 3 Feeding patients
3. Read or watch lesson 1 PowerPoint Meals
4. Read or watch lesson 2 PowerPoint Helping a patient self-feed
5. Read or watch lesson 3 PowerPoint Feeding a patient
6. Read or watch lesson 4 PowerPoint Alternative methods of feeding
7. The student worksheet is available for you to work online. This is not required but will help you with the quiz.
8. Take the quiz at the end of the lesson on Feeding Patients. I will be able to see your work and grades.
9. Remember you will be given credit for all your work. If you need anything contact me through remind or by email at akent@fcsd.k12.ms.us

Robotics & Engineering

Chemical Engineering

Look over the following terms to get an understanding of different aspects of Chemical Engineering.

Nanotechnology: research and development of lightweight, durable materials at the atomic molecular level

Pharmaceuticals: chemicals used for medications

SI: standard international metric unit of measurement

Acceleration: motion caused by force applied to an object

Potential: energy-stored energy

Thermodynamics: the study of the transformation of energy

Chlorination: a chemical process used for making large batches of products

Chemical reactions: the process of making synthetics from chemicals

Composite: material made from recycled materials

Bio-compatible material: material used for implants and prosthetics

Atom: the smallest particle of an element that can exist either alone or in combination

Technology: human innovation in action that involves the generation of knowledge and processes to develop systems that solve problems and extend human capabilities. The innovation, change, or modification of the natural environment to satisfy perceived human needs and wants.

Nanometer: a measure of length. 1 nm- 0.000000001 meter (1 billionth of a meter)

Periodic Table: P an arrangement of chemical elements based on their atomic structure and properties

Nanoparticle: a microscopic particle whose size is measured in nanometers (nm)

Photon: the ultimate unit of light energy

Photoresist: a light sensitive material used in several industrial processes to create a patterned coating on a surface

Carbon nanotubes: cylindrical carbon molecules exhibiting unusual strength and unique electrical properties that make them useful for extremely small scale electronic and mechanical applications

Chemical Engineering

Review the Chemical Engineering career under on the Engineering Your Future Web site "What is Engineering?" (top left tab) page at http://www.futuresinengineering.org. Answer the following question based on the material on that page.

1) What kind of education do you need to become an engineer?

2) List three different fields of engineering.

3) What do chemical engineers do?

4) What is nanotechnology?

5) List three applications of chemical engineering.

6) List three or more subjects students should study to become an engineer.

7) What tools are used by chemical engineers?

8) What fields do chemical engineers work in?

Chemical Engineering

Visit the Web site "Nanooze" www.nanooze.org for an introduction to the field of nanotechnology. You should look closely at the Web site answer the following questions.

Define the following terms:

1. nanotechnology

2. nanometer

3. nanoparticle

4. photon

5. photo resist

6. carbon nanotubes

You should also answer the following questions:

1. What is photolithography used for?

2. How can nanotechnology help diagnose and fight diseases like cancer? (look under Nanobiology and Nanomedicine section).

Teacher Academy I & II Plans

April 20th – 24th

Monday

Tell me about three different art activities that parents could do with students at home during quarantine. Feel free to use Pinterest. You can describe it to me or send me pictures.

Tuesday

Pretend that you have been selected to be on a committee to decide a graduation alternative to the regularly scheduled graduation. Tell me what you think would be the best course of action to address graduation and why you think these plans are a good alternative.

Wednesday

You are scheduled to do your student teaching to finish your teacher education program. The pandemic has hit, and you must now do your student teaching with a virtual classroom that consists of avatar students. What are the drawbacks of not being in an actual classroom with live students?

Thursday

If you had to choose a class pet for your classroom, what pet would you choose? Why would you choose this type of pet? How could it be incorporated into lessons?

Friday

You have been given the opportunity to get a class set of iPads to teach in your classroom, BUT you have to give justification on how it will be used in order to get them. Tell me the grade that you choose to get the iPads and explain the justification of how they will be used in the classroom so that you can get them.

Welding I

Module 29106-15 Weld Quality Lesson 4 Section 4 Week of April 20

Name _____ Date _____ Class period

Read Section 4 and answer the following questions on paper to save space here.

1. What is the purpose of performance qualification? 2. The welder and welding machine operator are qualified by _____.

3. Each welding position is designated by a _____ and a _____.

4. What do the following numbers and letters designate?

a. G _____
b. F _____
c. 1 _____
d. 2 _____
e. 3 _____
f. 4 _____
g. 2G _____
h. 3F _____
i. 4G _____
j. 1F _____

5. AWS, ASME, and API codes require that welders be qualified through testing to perform specific types of welds based on _____, ____, ____, ___, _____ and other variables.

6. AWS structural steel code provides information concerning the qualifications of ____, ____and __ for the type of welding done by contractors in building and bridge construction.

7. Individual welders and welding operators who are required to weld to ASME code must qualify in accordance with Section IX of the _____ on either plate or pipe.

8. _____ requires welders to make butt or fillet welds using qualified procedures on pipe or segments of pipe.

Answer Section 4 Review questions 1 – 3 page 38.

Next week will combine all of the sections for a section review so make sure you have all of your chapter!

Hope you are all doing well and know that we miss you!

SECTION FOUR

4.0.0 WELDER PERFORMANCE QUALIFICATION TESTS

Objective

Describe the welder performance testing process.

a. Describe the qualification of welders by position.
b. Describe welder qualification testing to meet AWS and ASME requirements.
c. Describe the process for completing a weld test.

The purpose of welder performance qualification is to measure the proficiency of individual welders. As previously discussed, codes require that welders take a test to qualify for performing a welding procedure.

> **NOTE** Various codes and specifications often require similar methods for qualifying welders. The applicable code or specification should be consulted for specific details and requirements. Ask your supervisor if you are unsure about which codes or specifications apply to your project.

4.1.0 Welding Position Qualification

The welder or welding machine operator is qualified by welding position. Welders may be qualified to perform a welding procedure in only one position, or possibly all positions by passing a welding qualification test. The qualification tests are designed to measure the welder's ability to make groove and fillet welds in different positions on plate, pipe, or both in accordance with the applicable code. Each welding position is designated by a number and a letter, such as 1G. These designations are standard for all codes.

The letter G designates a groove weld. The letter F designates a fillet weld. For plate welding, the positions are designated by the following numbers:

- 1 – Flat position welding
- 2 – Horizontal position welding
- 3 – Vertical position welding
- 4 – Overhead position welding

Figure 32 shows the plate welding positions for both fillet welds and groove welds.

For pipe welding, there are these additional positions: 5F, 5G, 6G, and 6GR. The number indicates that multiple-position welds are required. Also, in the 1G (flat groove) and 1F (flat fillet) positions, the pipe is rotated during welding. *Figure 33* shows the pipe welding positions for both fillet welds and groove welds.

A welder who qualifies in one position does not automatically qualify to weld in all positions. However, in most cases qualification for groove welds qualify the welder for fillet welds; qualification for pipe qualify the welder for plate. Qualification in one code may or may not qualify the welder in other codes. The qualification requirements between codes may not match. Refer to your site requirements/code for qualifying requirements.

4.2.0 Code-Required Testing

AWS, ASME, and API codes require that welders be qualified through testing to perform specific types of welds based on base metal, welding position, joint design, type of electrode, and other variables.

4.2.1 AWS Structural Steel Code

The AWS structural steel code provides information concerning the qualification of welding procedures, welders, and welding operators for the types of welding done by contractors and fabricators in building and bridge construction. Qualification for plate welding also qualifies the welder for rectangular tubing.

The mild steel electrodes used with shielded metal arc welding (SMAW) are classified by F numbers: F1, F2, F3, and F4. Qualification with an electrode in a particular F-number classification will qualify the welder with all electrodes identified in that classification and in lower F-number classifications. *Table 1* shows AWS F-number electrode classifications.

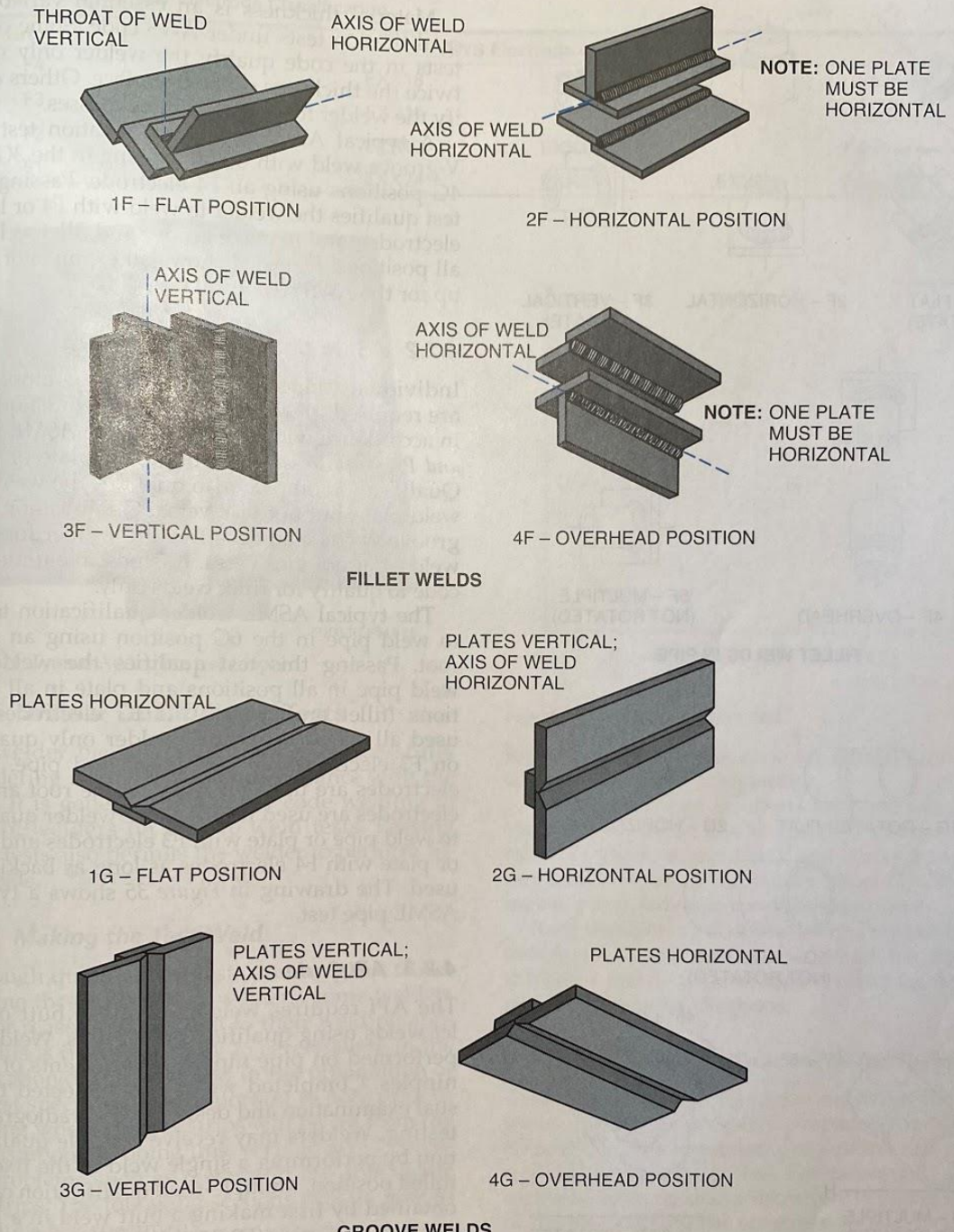


Figure 32 Welding positions for plate.

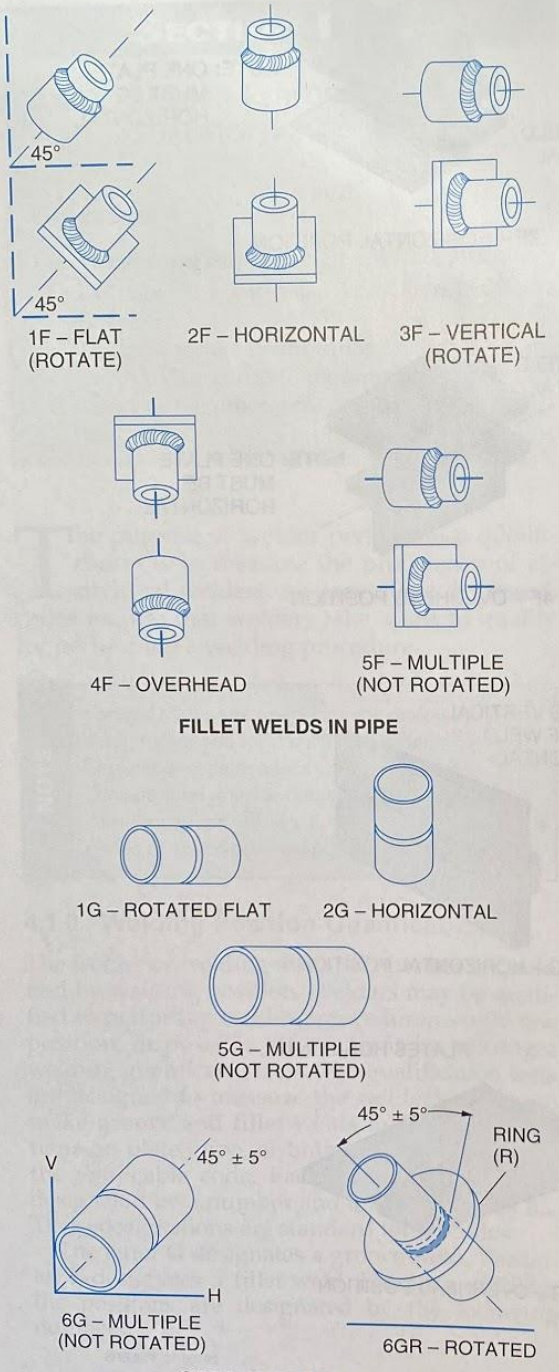


Figure 33 Welding positions for pipe.

Material thickness is an essential variable in qualification tests under AWS code. Some of the tests in the code qualify the welder only up to twice the thickness of the test piece. Others qualify the welder for unlimited thicknesses.

A typical AWS welder qualification test is a V-groove weld with metal backing in the 3G and 4G positions using an F4 electrode. Passing this test qualifies the welder to weld with F4 or lower electrodes, and to make groove and fillet welds in all positions. *Figure 34* shows an example of a fit-up for the AWS structural test.

4.2.2 ASME Code

Individual welders and welding operators who are required to weld to ASME code must qualify in accordance with Section IX of the *ASME Boiler and Pressure Vessel Code* on either plate or pipe. Qualification on pipe also qualifies the welder to weld plate, but not vice versa. Qualification with groove welds also qualifies the welder for fillet welds, but not vice versa. It is possible under the code to qualify for fillet welds only.

The typical ASME welder qualification test is to weld pipe in the 6G position using an open root. Passing this test qualifies the welder to weld pipe in all positions and plate in all positions (fillet and groove). If F3 electrodes are used all the way out, the welder only qualifies on F3 electrodes on both plate and pipe. If F3 electrodes are used for welding the root and F4 electrodes are used for filler, the welder qualifies to weld pipe or plate with F3 electrodes and pipe or plate with F4 electrodes as long as backing is used. The drawing in *Figure 35* shows a typical ASME pipe test.

4.2.3 API Code

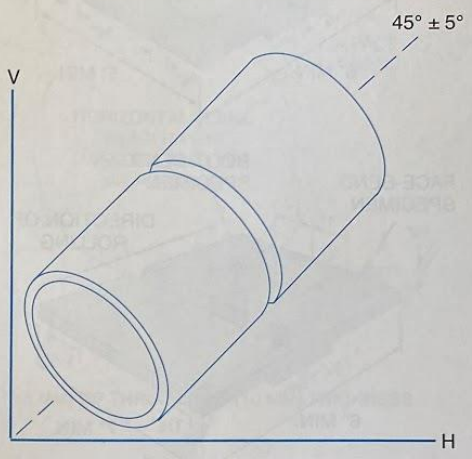
The API requires welders to make butt or fillet welds using qualified procedures. Welds are performed on pipe nipples or segments of pipe nipples. Completed welds are subjected to visual examination and destructive or radiographic testing. Welders may receive a single qualification by performing a single weld in the fixed or rolled position. Multiple-weld qualification can be obtained by first making a butt weld in a fixed position on 6" pipe (DN150) diameter with a minimum thickness of 0.250" (6.4 mm). A second test requires the welder to cut, fit, and weld a pipe of the same size without a backing strip.

Table 1 AWS F-Number Electrode Classification

Group	AWS Electrode Classification				
F4	EXX15	EXX16	EXX18		Low-Hydrogen
F3	EXX10	EXX11			Fast-Freeze
F2	EXX12	EXX13	EXX14		Fill-Freeze
F1	EXX20	EXX24	EXX27	EXX28	Fast-Fill

29106-15_F34.EPS

Figure 34 Typical AWS plate test coupon.



6G – MULTIPLE (NOT ROTATED)

29106-15_F35.EPS

Figure 35 Typical ASME pipe test.

4.3.0 Welder Qualification Tests

The welder becomes qualified by successfully completing a weld made in accordance with the WPS. It is general practice for code welding to qualify welders on groove weld tests. Passing these tests also permits the welder to perform fillet welds.

4.3.1 Making the Test Weld

Although qualification tests are designed to determine the capability of welders, some welders fail for reasons not related to their welding ability. This is due principally to carelessness in the application of the weld and in the preparation of the test specimen. It is important to note prior to welding where the test strips will be cut from the weld coupon. By doing this, you can avoid potential problems such as restarts in the area of the test strips. The following sections explain how to prepare a test specimen.

4.3.2 Removing Test Specimens

After making the qualification test weld, the test specimens are cut from the test pipe or plate by any suitable means. There are specific locations where the test specimen is cut from the pipe or plate. Refer to the applicable code for details related to specimen location and quantity.

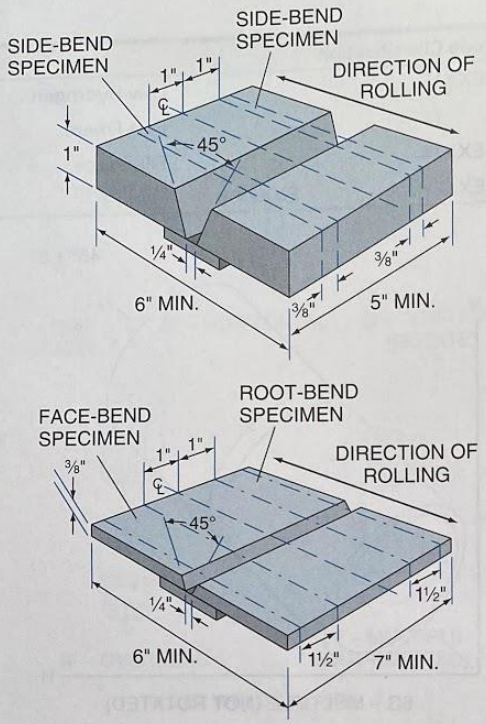
Typical specimen locations for plate welds are shown in *Figure 36*. For material ⅜" (10 mm metric plate) thick, a face bend and a root bend are required. For material thicker than ⅜" (10 mm metric plate), two side bends are required.

Note that tests are usually given on plate thicknesses of ⅜" (10 mm metric plate) for limited thickness and 1" (25 mm metric plate) for unlimited thickness qualifications.

4.3.3 Preparing the Specimens for Testing

After the specimen has been cut from the test piece, it must be properly prepared for testing (*Figure 37*). Poor specimen preparation can cause a sound weld metal to fail. For example, a slight nick may open up under the severe bending stress of the test, causing the specimen to fail. To properly prepare the test specimen, do the following:

- Grind or machine the surface to a smooth finish. All grinding and machining marks must be lengthwise on the sample. Otherwise, they produce a notch effect, which may cause failure.

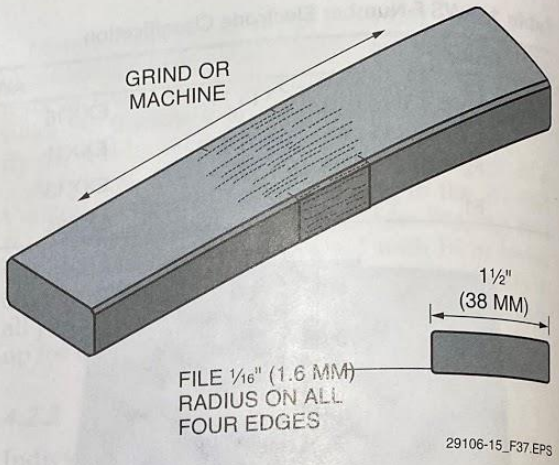


METRIC EQUIVALENTS	
¼"	6.4 MM
⅜"	10 MM
1"	25 MM
1½"	38 MM
6"	15.2 CM
7"	19.8 CM

29106-15_F36.EPS

Figure 36 Specimen locations for plate welds.

- Remove any face or root reinforcement from the weldment. This is part of the test requirement and, more important to the welder, failure to do so can cause the failure of a good weld. Grinding of the weld reinforcement may not exceed 1/32" (0.8 mm) or 5 percent of the thickness of the base material, according to AWS standards.
- Round the edges to a smooth 1/16" (1.6 mm) radius. This can be done with a file. Rounded edges help prevent failure caused by cracks starting at a sharp corner.
- Refrain from quenching specimens you are grinding when they are hot. Quenching may create small surface cracks that become larger during the bend test.



29106-15_F37.EPS

Figure 37 Example of a prepared test specimen.

After bending, the specimen is evaluated by measuring the discontinuities that are exposed. The criteria for acceptance can vary by code or site quality standards. AWS standards require that the surface shall contain no discontinuities exceeding the following dimensions:

- *1/8" (3.2 mm)* – Measured in any direction on the surface.
- *3/8" (10 mm)* – Sum of the greatest dimensions of all discontinuities exceeding 1/32" (0.8 mm) but less than or equal to 1/8" (3.2 mm).
- *1/4" (6.4 mm)* – Maximum corner crack, except when the corner crack results from visible slag inclusion or other fusion-type discontinuities, then a 1/8" (3.2 mm) maximum shall apply. A specimen with corner cracks exceeding 1/4" (6.4 mm), with no evidence of slag inclusions or other fusion-type discontinuities may be discarded, and a replacement test specimen from the original weldment shall be tested.

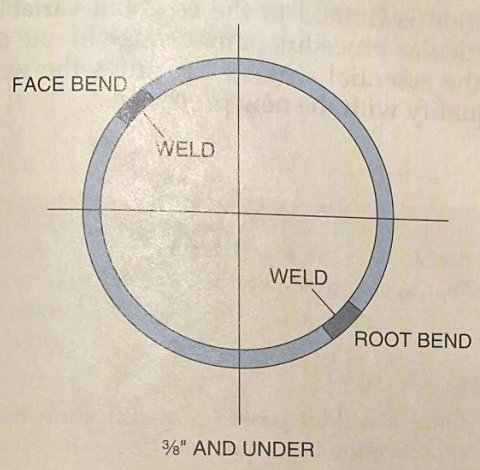
NOTE

In some cases, a radiographic inspection will be used instead of the guided bend test. This allows the entire weld to be examined and can detect small discontinuities at any location within the weld.

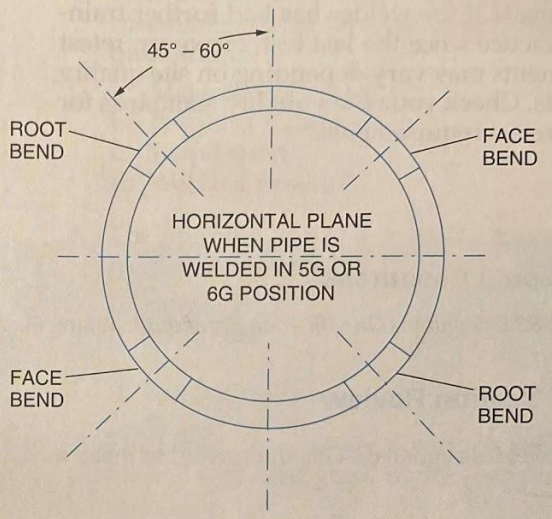
When the welder passes the qualification tests, the test results and the WPSs that the welder may weld are listed on a record that is kept by the company. This record becomes part of the quality documentation, and the welder becomes qualified to weld to that procedure.

AWS vs. ASME Pipe Welds

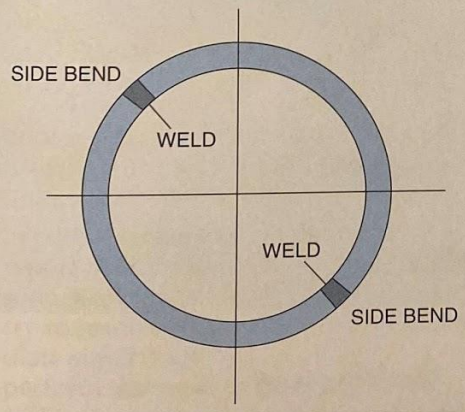
AWS and ASME codes have different requirements. The AWS version is shown on the left, while the ASME version is shown on the right.



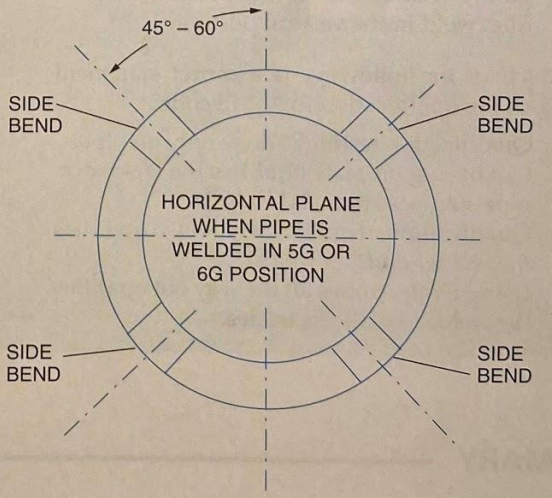
⅜" AND UNDER



PIPES 1/16" (1.6 MM) UP THROUGH ⅜" (10 MM) THICKNESS



OVER ⅜"



PIPES OVER ⅜" (10 MM) THICKNESS

29106-15_SA03.EPS

4.3.4 Welder Qualification Limits

Welders may retest if they initially fail the test. An immediate retest consists of two test welds of each type of test that was failed. All the test specimens must pass this retest. A complete retest may be made if the welder has had further training or practice since the last test. However, retest requirements may vary depending on site quality standards. Check your site's quality standards for specific retest requirements.

After welders have qualified, they may have to requalify if they have not used the specific process for a certain time period. This time period varies depending on the codes. Welders may also be required to requalify if there is a reason to question their ability to make welds that meet the WPS. Also, since welder performance qualification is limited to the essential variables of a particular procedure, any change in one or more of the essential variables requires the welder to requalify with the new procedure.

Additional Resources

AWS B3.0 Standard Qualification Procedure. Miami, FL: American Welding Society.

4.0.0 Section Review

1. A weld designated 3G is interpreted to mean a _____.
   a. fillet weld in the flat position
   b. groove weld in the flat position
   c. groove weld in the vertical position
   d. fillet weld in the vertical position

2. Which of the following is a *correct* statement regarding qualification to ASME code?
   a. Qualification testing is done only on pipe.
   b. Qualifying on plate qualifies the welder on pipe sizes less than 24".
   c. Qualification on groove welds also qualifies the welder on fillet welds.
   d. Using F3 electrodes all the way out qualifies the welder for all electrodes.

3. Once a welder passes a qualification test, the qualification is permanent.
   a. True
   b. False

SUMMARY

Quality is everyone's responsibility. If the work being done cannot be defined as quality work, it reflects on all those involved in the process. One essential trait of a craftsperson is a sense of quality workmanship. The craftsperson is generally closest to the work and will therefore have a major impact on product quality. Keeping quality in mind as you perform each step of your job will help you identify and correct small problems before they become major ones. This will make everyone's job easier and instill a sense of pride in what has been accomplished.

Safety, quality, and production each has a cost of its own. On the project, each of these factors should have proper guidelines. At the completion of the project, when all records for safety, cost, planning, scheduling, and effectiveness have been evaluated, the papers are usually filed away, but quality remains indefinitely for all eyes to see. Quality is, perhaps, the major reason for repeat business. How well the craftsperson performed will be noticed long after the project has been completed.

Welding II

Module 29207-15 Module Review Week of April 20 Name _____ Date _____

Review Questions

1. When making GTAW welds, always use safety glasses with a(n) _____.
   a. flame-retardant coating
   b. air-supplied respirator
   c. full face shield or a helmet
   d. OSHA-approved dust mask

2. When welding, the gas that should never be released in a large amount as compressed air around flammable materials is _____.
   a. oxygen
   b. argon
   c. carbon dioxide
   d. nitrogen

3. When a GTAW arc is struck across a gap, the resistance generates heat in the range of _____.
   a. 1,000°F to 2,000°F (550°C to 1,100°C)
   b. 2,000°F to 5,000°F (1,100°C to 2,750°C)
   c. 6,000°F to 10,000°F (3,300°C to 5,500°C)
   d. 15,000°F to 18,000°F (8,300°C to 10,000°C)

4. The duty cycle of a welding machine is based on a period of how many minutes?
   a. 5
   b. 10
   c. 15
   d. 20

5. What percent duty cycle do most heavy-duty industrial machines used for manual welding have?
   a. 50
   b. 100
   c. 50 to 60
   d. 60 to 100

6. An air-cooled GTAW torch that contains a manual gas control valve is typically used if the power source for the torch does not have a(n) _____.
   a. backup generator for the shielding gas supply
   b. electric solenoid valve to automatically control the shielding gas flow
   c. backflow prevention valve in the line leading to the electrode
   d. overload connection to a heat exchanger or cooling fan

7. Which of the following types of electrodes is radioactive?
   a. Lanthanated
   b. Thoriated
   c. Ceriated
   d. Zirconiated

8. How many times heavier is argon shielding gas than helium?
   a. Five
   b. Eight
   c. Ten
   d. Twenty

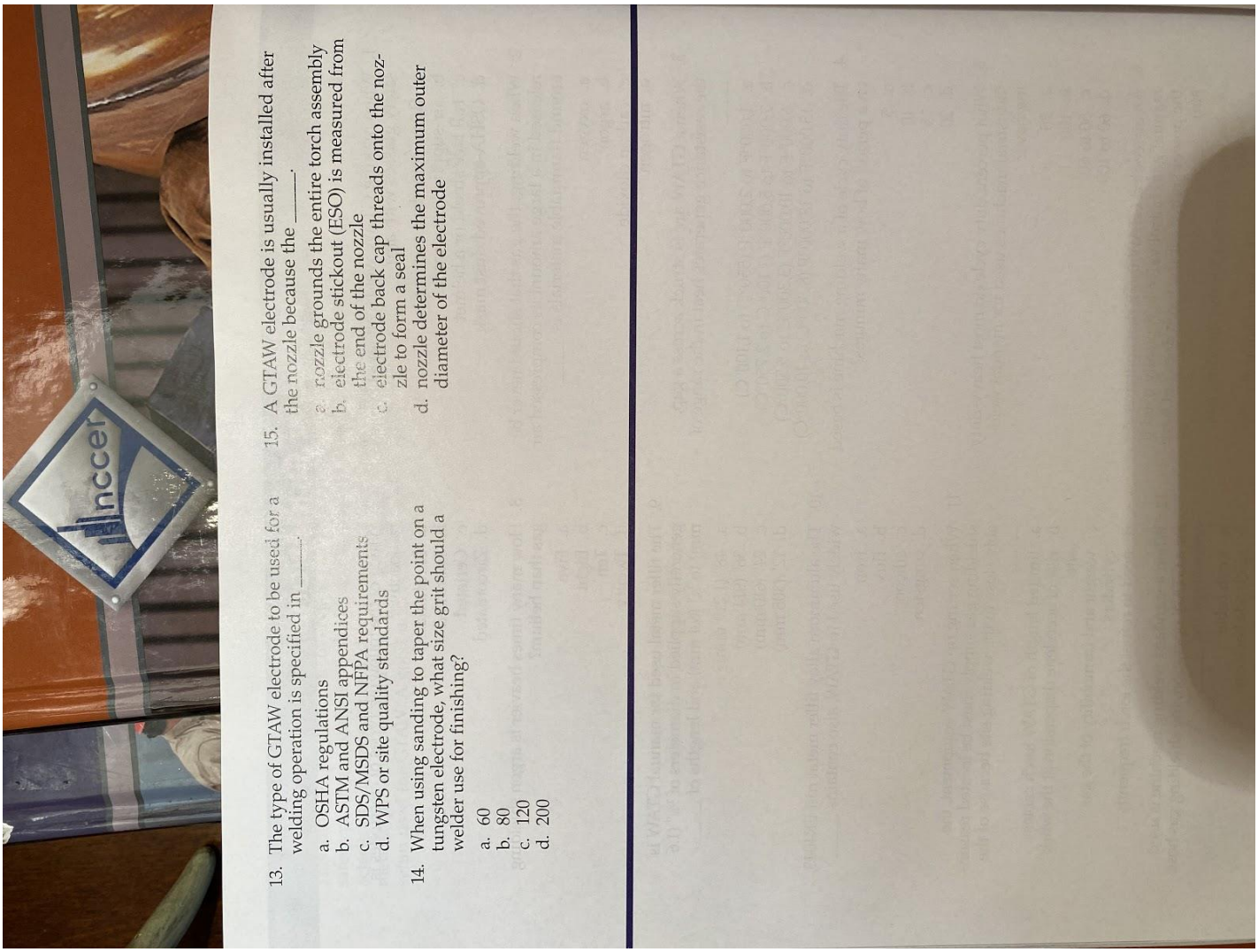
9. The filler metal used for manual GTAW is generally supplied in diameters of 1/16" (1.6 mm) to 1/4" (6.4 mm) and lengths of _____.
   a. 48" (1,219 mm)
   b. 36" (914 mm)
   c. 24" (610 mm)
   d. 12" (305 mm)

10. The aluminum alloy filler metal rod ER4043, widely used in GTAW, also contains _____.
    a. iron
    b. flux
    c. silicon
    d. tungsten

11. When setting up GTAW equipment, the shielding gas supply must be located reasonably close to the welding site because of the _____.
    a. limited length of GTAW torch cables
    b. risk of acetylene dispersion at the work site
    c. weight and immobility of the gas cylinders
    d. need to refuel the torch frequently

12. When a standard welding machine is used for a GTAW operation, the shielding gas hose connects to the _____.
    a. torch cable
    b. electrode back cap
    c. retaining cup
    d. nozzle gasket

Use the Previous Module Sections to answer the questions: Use separate paper or back of page to answer.



13. The type of GTAW electrode to be used for a welding operation is specified in _____.
    a. OSHA regulations
    b. ASTM and ANSI appendices
    c. SDS/MSDS and NFPA requirements
    d. WPS or site quality standards

14. When using sanding to taper the point on a tungsten electrode, what size grit should a welder use for finishing?
    a. 60
    b. 80
    c. 120
    d. 200

15. A GTAW electrode is usually installed after the nozzle because the _____.
    a. nozzle grounds the entire torch assembly
    b. electrode stickout (ESO) is measured from the end of the nozzle
    c. electrode back cap threads onto the nozzle to form a seal
    d. nozzle determines the maximum outer diameter of the electrode

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Use the Previous Module Sections to answer the questions:

1. If you see the label "TIG" on a welding machine, that machine is considered to be what kind of a welding machine? ____
2. In the atmosphere near the weld, the UV radiation from the GTAW process can ionize _____.
3. GTAW is most commonly performed using _____.
4. A high-voltage, high-frequency current used in GTAW work creates an arc that can jump a gap of about ____.
5. One of the advanced features associated with the GTAW process is the high-frequency intensity controls that provide better _____.
6. Setting the amperage at 200 amps for a welding machine that is rated 300 amps at 60-percent duty cycle will _____.
7. On a GTAW torch, to change an electrode or adjust its stickout, the welder loosens the_____.
8. Of the various types of tungsten electrodes available, the tungsten electrodes that are used for AC welding are ____.
9. The two principal shielding gases used for GTAW are _____.
10. When welding with GTAW in a cross draft situation, better shielding is provided by _____.

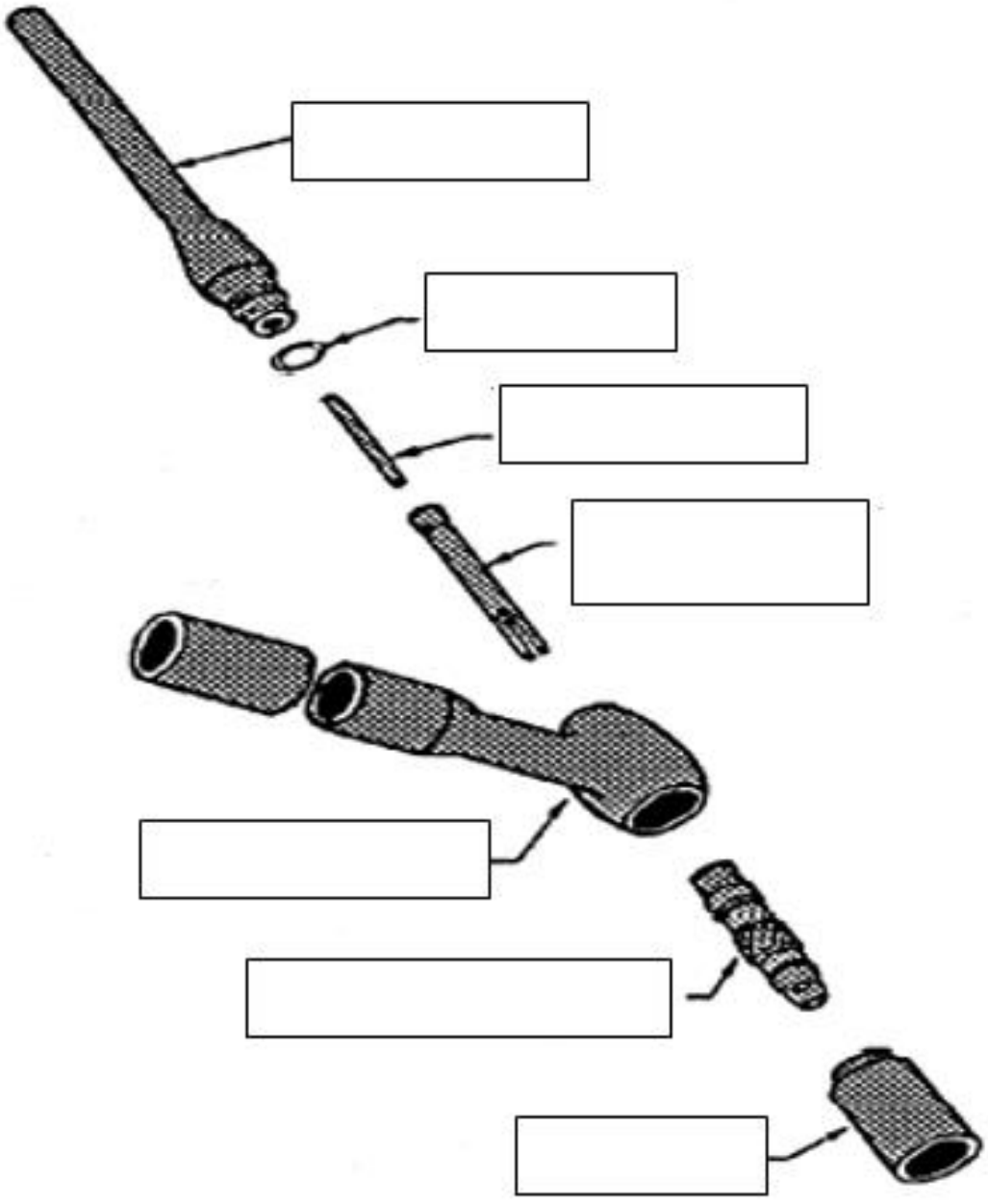
11. Carbon steel filler metals are identified by AWS Specification A5.18 and low-alloy steel filler metals are identified by AWS Specification _____.
12. When filler metal is graded for rigid control fabrication, the purchaser receives ____.
13. Which welding process is recommended for the repair of a defect on clean magnesium castings? _____
14. Titanium becomes sensitive to embrittlement by oxygen, nitrogen, and hydrogen at temperatures above ___.
15. GTAW commonly uses the same power sources and welding machines used for _____.
16. Higher shielding gas flow rates are required with _____.
17. The typical shielding gas for GTAW on deoxidized copper that is over 1/8" (3.2 mm) thick is _____.
18. Ceriated and lanthanated electrodes are used as non-radioactive substitutes for _____.
19. For which one of the following types of tungsten electrodes can the electrode tip be balled (spherical)?
20. For GTAW, the electrode is clamped in place inside the torch body by the _____.

WE MISS YOU! Hope you are well! Remember you can email me your completed work to CWactor@fcsd.k12.ms.us or you can turn in at a to be determined time that will be announced for credit.

Module 29207-15 GTAW Torch Assembly

Name _____ **Date** _____

Label the parts of the GTAW Torch below.



A message from Student Services!

I hope you are all well and staying as safe as possible!

If you need anything from me, please send me an email at LBein@fcsd.k12.ms.us

Please remember the Khan Academy has awesome resources to help you stay caught up or just to give you extra practice or even a higher level of math or science you may be interested in learning. Check it out!

Times are troubling right now, but better days are ahead!

Until then, Stay Safe, cover your face and wash your hands!

I miss you all and am sending virtual hugs and candy! ♥

Mrs. Bein

A message from Mrs. Calcote:

I hope you all are staying safe and enjoying some down time with your family! I am enjoying the time off with my children, but at the same time I am really missing seeing you all!

If you need anything at all, please email me at brcalcote@fcsd.k12.ms.us. You can also call the Career-Tech office and leave a message for me; the number is 601-384-5889. I will call you back as soon as I receive the message!

If you are a senior, remember to be filling out college applications! I will be more than happy to help you with these or anything else you may need; just send me a message and we can schedule a time to talk and work on it together (virtually of course).

I am here if you need me and I cannot wait to see you all again!

Mrs. Calcote