



CW High School

GTAW

1. Carbon Steel Welds (25.00%)

Learning Targets

1.1 I can properly setup a GTAW machine for welding on carbon steel. Including: torch assembly, electrode type and size, foot pedal, polarity, amperage, cup size, and flow rate.

Learning Target	Descriptor	Definition
4	Proficient	I can properly setup a GTAW machine for welding on carbon steel. Including: torch assembly, electrode type and size, foot pedal, polarity, amperage, cup size, and flow rate.
3	Developing	I can properly setup a GTAW machine for welding on carbon steel with minor mistakes, but the machine will still weld appropriately.
2	Basic	I can setup a GTAW machine for welding on carbon steel, but significant mistakes will cause poor welding conditions.
1	Minimal	I can hook up the torch and foot pedal and make some minor adjustments, but the setup will produce very poor welds, no welds at all, or damage the equipment.
0	No Evidence	No evidence shown.

1.2 I can produce a consistent square groove fusion weld in the 1F position on an outside corner joint with no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistent square groove fusion weld in the 1F position on an outside corner joint with no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistent.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistent or not complete.
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistent or not complete.
0	No Evidence	No evidence shown.

1.3 I can produce a consistent square groove weld in the 1G position using filler metal with no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistent square groove weld in the 1G position using filler metal with no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistent.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistent or not complete.



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Learning Target	Descriptor	Definition
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistent or not complete.
0	No Evidence	No evidence shown.

1.4 I can produce a consistent fillet weld in the 2F position on a lap joint with and without filler with no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistent fillet weld in the 2F position on a lap joint with and without filler with no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistent.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistent or not complete
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistent or not complete.
0	No Evidence	No evidence shown.

1.5 I can produce a consistent square groove weld in the 2G position using filler metal with no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistent square groove weld in the 2G position using filler metal with no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistent.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistent or not complete.
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistent or not complete.
0	No Evidence	No evidence shown.

1.6 I can produce a consistent fillet weld in the 2F position on a "T" joint with filler and no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistent fillet weld in the 2F position on a "T" joint with filler and no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistent.



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Learning Target	Descriptor	Definition
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistant or not complete.
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistant or not complete.
0	No Evidence	No evidence shown.

1.7 I can produce a consistant square groove weld in the 3G position using filler metal with no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistant square groove weld in the 3G position using filler metal with no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistant.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistant or not complete.
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistant or not complete.
0	No Evidence	No evidence shown.

1.8 I can produce a consistant fillet weld uphill in the 3F position on a "T" joint with filler and no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistant fillet weld uphill in the 3F position on a "T" joint with filler and no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistant.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistant or not complete.
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistant or not complete.
0	No Evidence	No evidence shown.

2. Aluminum (20.00%)

Learning Targets

2.1 I can properly setup a GTAW machine for welding on aluminum. Including: torch assembly, electroed type and size, foot pedal, polarity, amperage, cup size, and flow rate.



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Learning Target	Descriptor	Definition
4	Proficient	I can properly setup a GTAW machine for welding on aluminum. Including: torch assembly, electrode type and size, foot pedal, polarity, amperage, cup size, and flow rate.
3	Developing	I can properly setup a GTAW machine for welding on aluminum with minor mistakes, but the machine will still weld appropriately.
2	Basic	I can setup a GTAW machine for welding on aluminum, but significant mistakes will cause poor welding conditions.
1	Minimal	I can hook up the torch and foot pedal and make some minor adjustments, but the setup will produce very poor welds, no welds at all, or damage the equipment.
0	No Evidence	No evidence shown.

2.2 I can produce a consistant square groove fusion weld in the 1F position on an outside corner joint with no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistant square groove fusion weld in the 1F position on an outside corner joint with no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistant.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistant or not complete.
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistant or not complete.
0	No Evidence	No evidence shown.

2.3 I can produce a consistant square groove weld in the 1G position using filler metal with no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistant square groove weld in the 1G position using filler metal with no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistant.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistant or not complete
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistant or not complete.
0	No Evidence	No evidence shown.



4 I can produce a consistant fillet weld in the 2F position on a lap joint with and without filler with no defects.

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Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistant fillet weld in the 2F position on a lap joint with and without filler with no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistant.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistant or not complete
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistant or not complete.
0	No Evidence	No evidence shown.

2.5 I can produce a consistant fillet weld in the 2F position on a "T" joint with filler and no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistant fillet weld in the 2F position on a "T" joint with filler and no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistant.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistant or not complete.
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistant or not complete.
0	No Evidence	No evidence shown.

3. Stainless Steel (20.00%)

Learning Targets

3.1 I can properly setup a GTAW machine for welding on stainless steel. Including: torch assembly, electrod type and size, foot pedal, polarity, amperage, cup size, and flow rate.

Learning Target	Descriptor	Definition
4	Proficient	I can properly setup a GTAW machine for welding on stainless steel. Including: torch assembly, electrod type and size, foot pedal, polarity, amperage, cup size, and flow rate.
3	Developing	I can properly setup a GTAW machine for welding on stainless steel with minor mistakes, but the machine will still weld appropriately.
2	Basic	I can setup a GTAW machine for welding on stainless steel, but significant mistakes will cause poor welding conditions.
1	Minimal	I can hook up the torch and foot pedal and make some minor adjustments, but the setup will produce very poor welds, no welds at all, or damage the equipement.



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Learning Target	Descriptor	Definition
0	No Evidence	No evidence shown.

3.2 I can produce a consistant square groove fusion weld in the 1F position on an outside corner joint with no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistant square groove fusion weld in the 1F position on an outside corner joint with no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistant.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistant or not complete.
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistant or not complete.
0	No Evidence	No evidence shown.

3.3 I can produce a consistant square groove weld in the 1G position using filler metal with no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistant square groove weld in the 1G position using filler metal with no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistant.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistant or not complete.
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistant or not complete.
0	No Evidence	No evidence shown.

3.4 I can produce a consistant fillet weld in the 2F position on a lap joint with and without filler with no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistant fillet weld in the 2F position on a lap joint with and without filler with no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistant.



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Learning Target	Descriptor	Definition
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistent or not complete
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistent or not complete.
0	No Evidence	No evidence shown.

3.5 I can produce a consistent square groove weld in the 2G position using filler metal with no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistent square groove weld in the 2G position using filler metal with no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistent.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistent or not complete.
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistent or not complete.
0	No Evidence	No evidence shown.

3.6 I can produce a consistent fillet weld in the 2F position on a "T" joint with filler and no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistent fillet weld in the 2F position on a "T" joint with filler and no defects.
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistent.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistent or not complete
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistent or not complete.
0	No Evidence	No evidence shown.

3.7 I can produce a consistent fillet weld uphill in the 3F position on a "T" joint with filler and no defects.

Learning Target	Descriptor	Definition
4	Proficient	I can produce a consistent fillet weld uphill in the 3F position on a "T" joint with filler and no defects.



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Learning Target	Descriptor	Definition
3	Developing	I can produce the given weld with minor discontinuities and minimal defects. The weld bead is very consistant.
2	Basic	I can produce the given weld with minor discontinuities and minimal defects. The overall bead is not consistant or not complete.
1	Minimal	I can produce sections of weld bead, but there are major defects and the weld is inconsistant or not complete.
0	No Evidence	No evidence shown.

4. GTAW Theory (35.00%)

Learning Targets

4.1 I can explain the GTAW process and the effects of voltage, current, and resistance in the system and describe the effects and characteristics of welding with different polarities.

Learning Target	Descriptor	Definition
4	Proficient	I can describe the GTAW process and explain how it is different from the GMAW and SMAW processes.
3	Developing	I can explain the GTAW welding process and the effects of voltage, current, and resistance in the system, but I can not describe the effects and characteristics of welding with different polarities.
2	Basic	I can explain how the electricity flows and how it changes with different polarities, but I do not understand how voltage, current, or resistance relate to the system.
1	Minimal	I understand that you adjust the amperage at the machine and that you weld on DCEN or AC for aluminum, but I can not explain why.
0	No Evidence	No evidence shown.

4.2 I can categorize the common tungsten electrodes using the AWS number and color code system, and explain the characteristics of each electrode.

Learning Target	Descriptor	Definition
4	Proficient	I can categorize the common tungsten electrodes using the AWS number and color code system, and explain the characteristics of each electrode.
3	Developing	I can categorize the common tungsten electrodes using the AWS number and color code system, and I can describe some of the electrode characteristics.
2	Basic	I can match the common tungsten electrodes to the AWS color code system, and I know that some of them will not work with different polarities.
1	Minimal	I know that there are different types of tungsten electrodes and I can identify one or two of them.



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Learning Target	Descriptor	Definition
0	No Evidence	No evidence shown.

4.3 I can explain the reason for proper shielding gas operation and setup for GTAW. (gas types, flow rates, cup sizes and types, pre and post flow setting, etc.)


Learning Target	Descriptor	Definition
4	Proficient	I can explain the reason for proper shielding gas operation and setup for GTAW. (gas types, flow rates, cup sizes and types, pre and post flow setting, etc.)
3	Developing	I can explain the proper shielding gas operation and setup for GTAW, but I am missing a few minor details.
2	Basic	I can explain the proper shielding gas setup for GTAW, but I am not sure what will happen if the gas setup is incorrect.
1	Minimal	I know that GTAW requires shielding gas to protect the weld, but I am not sure of the proper operation or setup.
0	No Evidence	No evidence shown.

4.4 I can compare and contrast the different arc start methods for GTAW, and explain the advantages and disadvantages of each.

Learning Target	Descriptor	Definition
4	Proficient	I can compare and contrast the different arc start methods for GTAW, and explain the advantages and disadvantages of each.
3	Developing	I can compare and contrast the different arc start methods for GTAW, and I can explain some of the advantages and disadvantages of each.
2	Basic	I can list the different arc start methods and explain a little bit of each of them.
1	Minimal	I know that there are different arc start methods, but I don't know a lot about them.
0	No Evidence	No evidence shown.

4.5 I can describe the different techniques, tools, filler metals, and preparation used for welding on carbon steel, stainless steel, and aluminum.

Learning Target	Descriptor	Definition
4	Proficient	I can describe the different techniques, tools, filler metals, and preparation used for welding on carbon steel, stainless steel, and aluminum.
3	Developing	I can describe most of the different techniques, tools, and preparation used for welding on carbon steel, stainless steel, and aluminum.


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Learning Target	Descriptor	Definition
2	Basic	I can describe some of the different techniques, tools, and preparation used for welding on carbon steel, stainless steel, and aluminum.
1	Minimal	I know that aluminum is run on AC and stainless and carbon steels are run on DCEN, but I can not describe other details.
0	No Evidence	No evidence shown.

Submitted on 2/17/2020 by Bob Morehead