
BBQ Spatula

Name: _____

Date: _____

Description:

The students will create a BBQ Spatula using No. 26 gauge stainless steel for the blade and the handle will be made out of steel rod. Other materials can be use if these specific ones are not available. The handle will be connected to the blade using rivets. Once the project has been put together, it can be polished and/or buffed. This project could also double as a Pancake Flipper.

Materials:

20-22 Gauge Stainless Steel
¼" HR Steel Rod
1/8" x ¼" pop rivets
High temp spray paint

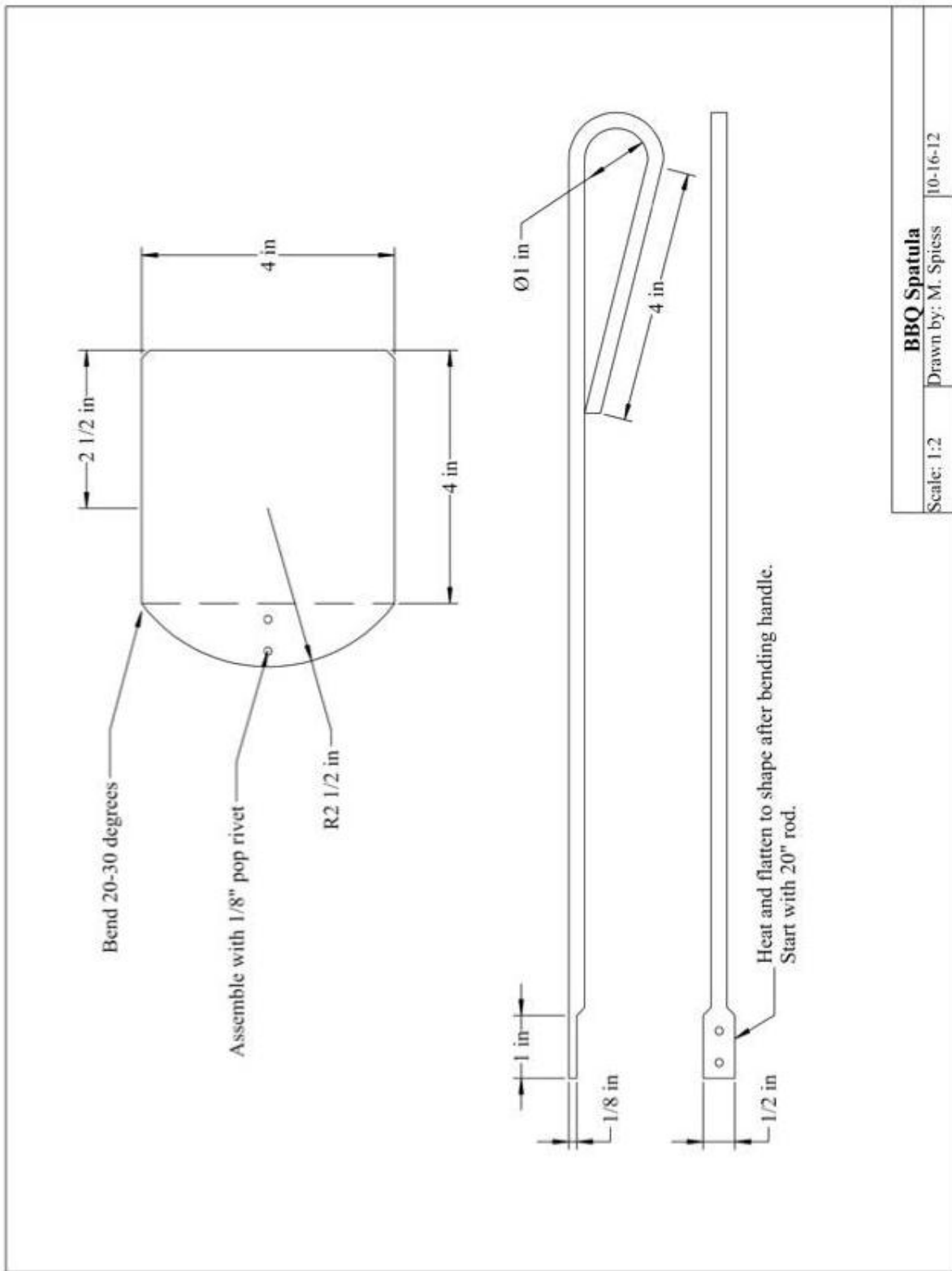
Tools:

Rivet Gun
Tin Snips
Drill Press
Hossfeld bender
Brake
1/8" Drill Bit
Oxyacetylene Torch
Ball Peen Hammer
Anvil
Scratch all
File

Procedure:

1. Lay out the BBQ Spatula blade as should in the diagram.
2. Cut the stainless steel using tin snips (Be careful, edges will be sharp!)
3. Dress the edges with a fine file.
4. Cut the rod for the handle at the proper length using a hacksaw or a hydraulic sheer.
5. Dress the ends with a file.
6. Using a Hossfeld bender, bend the handle at the correct locations. (Some variation in the handle is acceptable depending on available tools.)
7. Using an oxyacetylene torch, heat up the side with the rivets will be inserted. Do this on an anvil and then carefully flatten out end using a ball peen hammer. This will allow the rivets to be inserted easily.
8. Using the drill press, drill two holes in the sheet metal. Drill two holes in the handle being sure that they align with the holes in the sheet metal.
9. Paint the handle.
10. Bend the blade in the brake.
11. Connect the handle to the sheet metal using a pop rivet gun. Make sure the rivets are tight and correctly in place so the handle is secure.

Photo/Drawing:



BBQ Spatula		
Scale: 1:2	Drawn by: M. Spiess	10-16-12

BBQ Spatula Worksheet

Name: _____

Date: _____

Directions: Match the tool using the best corresponding letter that will be needed to complete the steps in making a pancake turner. More than one letters may be used at a time or not at all.

How to make a BBQ Spatula:

1. _____ Lay the plan for the turner out on sheet metal.
2. _____ Cut out the sheet metal plan.
3. _____ Cut the metal rod to the necessary length.
4. _____ Bend the metal rod at the correct location as shown on the plan.
5. _____ Heat up and the correct end of the rod and flatten it.
6. _____ Drill two 1/8" holes in the flattened side of the rode and in the corresponding location on the sheet metal.
7. _____ Bend the curved end of the sheet metal at the 1" mark.
8. _____ Insert rivets tightly connecting the handle to the sheet metal.

Name the tools corresponding with the letter:

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____
- H. _____
- I. _____
- J. _____

Tools:



A.



B.



C.



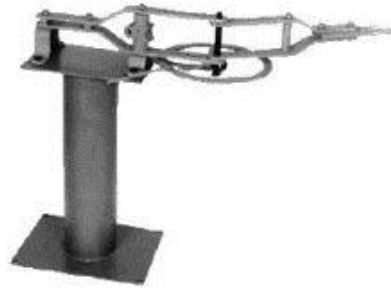
D.



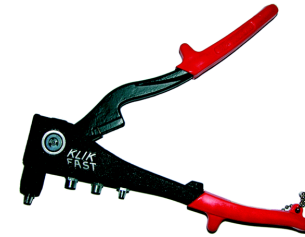
E.



F.



G.



H.



I.



J.

Grading Rubric:

<u>CRITERIA</u>	<u>POSSIBLE</u>	<u>SCORE</u>
Measurements	5	
Metal Rod Bend (1" diameter)	5	
Metal Rod Hot Metal Work (flatten end)	5	
Cutting of Sheet Metal	5	
Pop Rivets (Location and Secure)	5	
Handle Placement and Workmanship	5	

Feed Scoop Teachers Notes:

Blades can be made from scrap stainless steel sheet – look for a local source.

Agricultural Standards Met:

Foundation Standards:

- 4.6 Differentiate among, select, and apply appropriate tools and technology.
- 6.5 Use tools and machines safely and appropriately.
- 7.6 Know how to apply high-quality craftsmanship to a product or presentation and continually refine and perfect it.

Ag Mechanics Standards:

- B1.1 Practice the rules for personal and group safety while working in an agricultural mechanics environment.
- B5.1 Know how to identify common metals, sizes, and shapes.
- B5.2 Know basic tool-fitting skills.
- B5.4 Know basic cold metal processes (e.g., shearing, cutting, drilling, threading, bending.).
- B5.5 Complete a cold metal project, including interpreting a plan, developing a bill of materials, selecting materials, shaping, fastening, and finishing.

Objectives:

By properly completing this project, students will be able to:

- Properly lay out the plan on the sheet metal
- Properly measure steel rod
- Properly use tin snips
- Correctly rivet sheet metal
- Demonstrate hot and cold metal work

Alternative Tools/Methods/Materials:

- Stainless steel rod is a nicer material for the handle, but more expensive.
- A *metal sheer* could be used to cut the blade of the spatula. This would give the students the opportunity to develop skills for a new tool.
- A Beverly shear is handy for cutting heavier sheet metal.
- If a *Hossfeld Bender* is not available to bend the end of the handle, the rod could be heated up with an *Oxy Acetylene Torch* and bend using hot metal bending techniques. Bend around a ¾" steel pipe.
- *Tinner's rivets* could be used instead of pop rivets.
- If *Stainless Steel* is not available for the platform, regular *Steel Metal* could be used. The only difference is it will not hold up as well and has to potential to rust.

- If there is no *Drill Press* that the students can use, a *hand drill* can be used. This will be more difficult and make sure the material is securely clamped down so it does not spin.
- A straight rod works with a wooden handle made from a dowel or use a commercial file handle.

Safety Review:

- Personal safety (safety glasses, gloves)
- Sheet metal safety
- Oxy-acetylene torch safety
- Hot metal safety
- Drill press safety

Project Time:

Demonstration:	30 minutes
Build:	2 hours

Demonstration Notes:

1. Have students work in pairs while they are flattening the steel rod. This will help prevent students from burning themselves.
2. When bending the steel rod with the Hossfeld bender, place the marker on the four inch mark so the under part of the handle stays at four inches.

Bill of Materials:

Projects:		24					
Size	Description	Units	Qty/Project	Cost/Unit	Order	Amount	
12in X 12in	20 gauge stainless steel scrap	each	0.16666667	\$5.00	4	\$	20.00
1/4"	HR steel rod	20' bar	0.08333333	\$4.00	2	\$	8.00
1/8 x 1/4	1/8in pop rivets (100 pack)	100/box	0.02	\$5.48	1	\$	5.48
					TOTAL	\$	33.48

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