# Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Block:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Grade: \_\_\_\_\_\_\_\_\_\_\_/350 points

## How Stuff Works: Metal

**Instructions: Watch the videos and answer the following questions in a different color.**

**Use** <https://nickcornwell.weebly.com/howstuffworksmetal.html>

**How Its Made: 033 Steel**

1. The magnet in the video can pick up \_\_\_\_\_\_\_\_\_\_ tons or 10,000 pounds.
2. 60 tons of metal will melt in \_\_\_\_\_\_\_\_\_\_\_\_ minutes.
3. Steel billets are cut with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tons of steel bars are made at this factory yearly.

**How Its Made: Ore to Steel**

1. What is coke in the steel making process?
2. What is a blast furnace?
3. What is pig iron?
4. Steel needs to have less than \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ % carbon.

**How Its Made: Stainless Steel**

1. Stainless steel contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to make it rust proof.
2. How do the factory workers write on the stainless steel slabs?
3. Oxide film does what?

**Welding 101 for Hobbyists (and Nerds)**

1. Define fusion in terms of welding-
2. What is welding?
3. Explain how welding differs from soldering/brazing.
4. What are the different types of welding?
5. OFW stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. SMAW stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. GMAW stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. FCAW stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. What safety equipment do you need to weld?

**How Its Made: Aluminum**

1. Aluminum ore is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Explain how aluminum is processed in one paragraph (20 points).

**How are Aluminum Cans Recycled? How do they do it?**

1. 150 years ago, Aluminum was more expensive than \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. In a paragraph, describe the process of how new cans are formed. (20 points)

**MAKE: Learn to use a Tap & Die to Cut Threads**

1. Define “tap”
2. Define “die”
3. What is a bolt thread count?
4. What does a screw pitch gauge measure?