Metallurgy and the Industrial Revolution

By: Tyler Linza
Charcoal was originally used in smelting

- Although charcoal kinda worked, it didn’t get as hot as coal
- Charcoal has a combustion temp of up to 1,300 degrees while coal has a combustion temp of up to about 2,100 degrees.
• The first attempt was believed to be used by the English metallurgist Dud Dudley in the 1620s
• His experiments were mostly scientific and didn’t benefit anybody
Sir Clement Clerke

- Originally was a sponsor of Dudley's experiments
- Improved upon Dudley’s method by using a reverberatory furnace
- This furnace isolated contact from the material being in contact with the fuel
- This helped to remove coal impurities from the metal
The Darby dynasty and the industrial revolution

• The Darby family has been given a large amount of credit for helping the industrial revolution with the push it needed.

• Starting with Darby I he was the first to use coke in his industrial furnace.

• Coke is coal that has been burned in the absence of air and when used in a furnace it burn really hot.

• Darby I used coke, charcoal, and peat to smelt cast iron and thus began a new era in the metallurgical age.

• Interesting fact: Historians believe that the great-grandmother of Abraham Darby I was Dud Dudley’s sister.
Darby dynasty

- Darby II came up with the idea of using only coke in smelting.
- This helped bring his foundry to be one of if not the leader in iron production in Great Britain.
Iron Bridge

- Darby the III was commissioned to build a bridge that connected two towns together
- No one in the world has experience building such a large infrastructure from metal
- Almost 385 tones of iron and consists of 1,700 parts
- Bridge remained in use until 1935
Metal Consumers

• Great Britain was a leader in the metallurgical industry
• In 1875 it accounted for 47% of global production of pig iron and nearly 40% of steel