First Industrial Revolution

Background
- 18th Century Economic and Social changes
  - First revolution is pre-Napoleon
  - Second revolution is mid-19th century
- Britain is birthplace for Industrial Revolution

Production Methods
- Middle Ages
  - Guilds
    - Granted monopolies by king
    - Set prices, conditions, quality standards
    - Apprentice and master status
    - Power of guilds slowly broke down
      - Too exclusive and expensive
- Domestic System
  - Work done at home
  - Very important at beginning of the Industrial Revolution
    - Increased output due more to an increase in domestic industry than new forms of production
    - Working very well
  - Gradually technology became important
  - Low pay rates in the countryside
  - Persistence of Domestic system
    - Factories eventually replaced workshops
      - Better supervisions and discipline
      - Machinery too expensive
- Thomas Malthus (1766-1834)
  - Essay on the Principle of Population
    - 1798
    - War, disease, etc. are all natural
      - Can’t do anything about it
    - Population growing faster than food supply
      - Famine and Starvation are natural
      - Dismal Scientist
- Physiocrats
  - French economic philosophers
    - Searched for natural laws to explain the economy
  - Opposed to mercantilism
  - Land is the source for all wealth
    - Not gold or silver
  - Favored free trade

Reasons for Beginning
- Agricultural Revolution
  - Producing enough food to feed everyone
    - Surplus of food
      - Created labor and capital available for industry
- New farming methods
  - Mechanical drill
  - Breeding programs
  - Crop rotation
    - Instead of leaving fallow
  - Fertilizers
- Enclosure Movement
  - Commons
    - Village land available to everyone
  - Poorest farmers could not survive
    - Small farmers forced off land
    - Went to cities to search for jobs
      - Mobile labor source
      - Willing to move anywhere to find a job
  - Land ownership led to incentives to improve production
- Land Reclamation
  - Gained more usable land
- Shifts
  - Warmer and drier climate in 18th century
  - New crops
    - Potatoes, tomatoes, turnips, sugar beets
    - From the New World
  - Animal husbandry improvements
    - Sheep raising
  - Societies and help groups to discuss agriculture and model farms
    - Sharing ideas
- By 1750 England exported 15% of its agricultural output
- Labor Supply (Demographic Revolution)
  - Workers forced off land
  - Population growth
    - Because of improved food production
  - Improved health and life expectancy
    - Vaccination
    - Fewer epidemics
    - Improved sanitation
    - Fewer and less devastating wars
    - Cotton clothing
    - Earlier marriages and more kids
    - Improved diets
- Invention
  - Continuation of the Scientific Revolution
    - Solve problems through reason
  - One invention begets another
    - Compounding effect
  - Most were in farming or in textiles
  - At first not very important
    - No brilliant discoveries
      - New applications of existing technologies
    - Small workshops replace domestic system
- **Inventors**
  - James Watt
    - Steam Engine
  - Abraham Darby
    - Smelting process
  - Henry Cort
    - Puddling process
  - James Hargreaves
    - Spinning Jenny
  - Richard Arkwright
    - Water Frame

- **Markets**
  - Place to sell goods
  - Need for increased demand
    - Larger populations
    - Growing middle class
    - Colonies

- **Entrepreneurs**
  - People who organize and manage business
  - Wealthy
    - From trade and colonies
  - Built factories
  - Capitalists
    - Interested in profit
    - Willing to take risks

- **Transportation**
  - Biggest merchant force in the world
    - Made easier to reach market and get materials
  - Infrastructure
    - Canals
    - First major railroad
      - 1830 – Liverpool to Manchester
    - Canals and Macadam roads

- **Natural Resources**
  - Easy access to natural resources
  - Main components needed
    - Coal
    - Iron
  - Raw materials in colonies

- **Investment Capital**
  - Money to invest
  - Wealthy landowners and merchants
  - Low interest rates
  - Banking systems
    - Bank of London
      - Bills of Exchange
      - Extended credit
  - Colonies
    - Cheap resources
  - Large middle class
    - Entrepreneurs
- Stable Political Climate
  o Avoid revolution
  o Peace
  o Developed responsible legislative system
    ▪ British Parliament
      • Worked and was secure
      • Government paid off all debt
    ▪ Act of Union (1707)
      • Created the Kingdom of Great Britain
        o England, Scotland, Wales
      • Same language
    ▪ No internal tariffs
    ▪ Standardized weights and measures
- Religious Attitudes
  o Protestant Ethic
    ▪ Encouraged thrift and hard work
    ▪ Save money
    ▪ Focused on worldly concerns
- State Assistance
  o British navy protected merchant marine
  o Navigation Acts
    ▪ Low taxes and high tariffs on imported goods