* Processing methods, smelting, casting
* Forms of iron, wrought iron, steel, cast iron and their properties
* Carbon alloying effect on mechanical properties
* Iron carbon phase diagram
* Bloomery, Blast furnace, Bessimer furnace, BOP
* Bloom Iron and Pig iron
* Quenching, puddling
* Charcoal, Coal and coke
* Smelting iron oxide
* Andrew Carnegie, history
* Carnegie steel business practices
* Hard driving, vertical integration, price leader
* Mg alloys
* Properties and potential applications
* Aluminum properties
* Lavoisier and Priestley
* Oxide reduction, challenges for Al2O3
* History of Al
* Solid Solution hardening mechanism
* Precipitation hardening mechanism
* Work hardening mechanism
* Cyclic Fatigue
* Economic deflation
* Monopolies
* Anti-trust act
* Alcoa and its stand on anti-trust
* Amorphous metals
* History of writing
* Result of the printing press
* Papyrus
* Parchment
* Linseed oil
* Pulping (mechanical and chemical)
* Kraft Process
* Cellulose
* Lignin
* Information storage media (wax, papyrus, paper, magnetic media)
* Magnetic recording
* Polymers
* Cellulose nitrate
* Common forms of Plastic
  + Polyethylene
  + Polyproplyene
  + Polyvinylchloride (PVC)
  + Polystyrene
* Rubber challenges
* Vulcanization how does it work
* Ziegler Natta catalysts function
* General properties of polymers
* Role of Tupperware on Gender Roles
* 3 kinds of marketing strategies
* Advertising Lingo
* Semiconductors
* Silicon properties
* Doping semiconductors
* p-type
* n-type
* Transistor (structure and basics of switching)
* Integrated circuits
* Moore’s Law
* MoS2
* Digital Divide
* Delegation
* Web 1.0, 2.0 3.0
* Information revolutions
* Tethered selves
* Carbon
* Diamond
* Graphite,
* Graphene
* Greenhouse Gas
* Sequestration

In general apply the impact paradigm to each of the materials discussed in the second half of the class Iron, Steel, Aluminum, Paper, Plastics, Semiconductors and Carbon