Class 6

Beginnings of the Space Race and Cold War

Columbia Shuttle Accident
- February 2, 2003
- Second shuttle lost
- Investigation Board set up by President to uncover causes

Shuttle debris

Public reaction

Board Findings
- Management and organizational problems at NASA
- Political indecision
- Lack of investment
- [http://www.caib.us/default.asp](http://www.caib.us/default.asp)

World War II
- September 1, 1939, Germany invades Poland
- December 7, 1941, Japanese attack Pearl Harbor
- United Nations, formed, 1943-44
- April 12, 1945, Roosevelt dies, replaced by Truman
- May 8, 1945, Germany surrenders
- August 14, 1945, Japan surrenders
- Truman replaces New Deal with Fair Deal

Beginning of the Cold War
- August 1, 1946, Atomic Energy Act
- July 26, 1947, Defense act
- 1947 Marshall Plan (European Recovery Program)
- late 1947, Russia seizes control in Czechoslovakia
- April 1948, blockade of Berlin, Berlin airlift
- 1949, two major events
  - April, Russians explode an atomic bomb
  - China falls to Mao Tse-tung and communists
- April 1949, NATO formed

Transition to the 1950s
- late 1940s, New/Fair Deal questioned
- 1949, 11 communists convicted of anti-American
• Alger Hiss convicted of being a communist agent
• June 26, 1950, North Korean Communists invaded South Korea
• 1951, Rosenbergs tried and executive (1953) for passing bomb secrets to Russians in 1944-45
• 1950-1954, House Un-American Activities Committee
• 1954 McCarthy censured by the Senate for his excesses

Korean War
• a UN Police keeping action
• quickly pushed passed the crucial 38th parallel, into North Korean territory, under Douglas MacArthur
• December, 1950, Chinese had entered, push UN troops below the 38th parallel
• April 1951, MacArthur removed
• End of “war,” June 27, 1953
• November 1, 1952, US exploded the hydrogen bomb

Eisenhower Years, 1952-1960
• brought Korean War to an end
• forms Department of Health, Education, and Welfare
• strong believer in state control and small business
• favored arms control and arms reduction
• heart attack in 1955, recovered and went on to run again
• 1957, Suez crisis (beginning of Middle East problems), Nassar took over the control of the canal
• 1958 and 59, Alaska and Hawaii admitted to the union

Civil rights
• 1954-55, boycotts and marches begin
• May 17, 1954, Brown vs. Topeka
• Nov, 1956, Supreme Court throws out segregation laws
• Sept 7, 1957, first major Civil Rights Act since Civil War
• a few weeks later, confrontation in Little Rock

Models for scientific and technological development
A. scientific idea leads to unintended applications and consequences

B. technological need spurs the growth of science

C. basic/applied research

History of Rocketry through early 1950s
A. early history
   - U.S., 1919, Robert Goddard published work on rocketry
   - 1926, American Interplanetary Society
   - 1933 British Interplanetary Society
   - by early 1930s, Russia the only country where major support is being given to rocketry
B. Germany moves rockets into the military theatre during WWII
   - 1929, Ordnance Ballistic Section, assigned to build rocket that will have longer range than artillery (which could shoot 65 miles)
   - 1942, Germans launch their first V-1 (Vergeltungswaffe)
   - 1942, also testing A-4 (V-2)
   - German rocket program split in two places
     • Peenemunde, on the Baltic (R&D)
     • Harz Mountains, assembled, turned out 900/months at the end of the war
   - at the end of the War, most of this technology came to the U.S.
     • van Braun: "We despise the French; we are mortally afraid of the Soviets, we do not believe the British can afford us; so that leaves the Americans."

C. Russia, which developed more slowly to WWII, flourishes after
   - poured major resources into R&D after the war
   - 1949, had a range of 500 miles
   - 1953, explode their first H bomb
   - 1954, well on the way to an ICBM
   - 1957, launched Sputnik

US missile policy

   • immediately after the war, there is significant infighting over control and organization in the military
   • 1947 (July 25), military reform act is passed
   • 1947-48, budget cuts result in cutbacks on missile programs
   • von Braun working at White Sands and Red Stone (Huntsville)

Russian program grows, US program slows down
   - AF and Army had different ideas
     • Army, had the biggest launch vehicles
     • AF proposed a series of light, flight vehicles
   - Eisenhower administration not convinced that government should pursue a rocket program
   - there were those who saw this as a chance to undermine Eisenhower

NASA

   • 1915, government had organized the National Advisory Council of Aeronautics
   • Eisenhower and James Killian (pres sci advisory and pres of MIT) agree to recast as space agency
   • April 2, 1958, NACA becomes NASA (National Aeronautics and Space Agency/ later Administration
   • late 1958, NASA in business and coordinating our space program

Close of the 1950s, situation

   • Sputnik I (October 4, 1957)
   • Sputnik II (November 3, 1957)
• Vanguard TV-3 (December 4, 1957)
• January 31, 1958, Jupiter-C launches Explorer 1 satellite
  - von Braun's army team supplies the launch vehicle
  - brought back first major discovery, van Allen belts