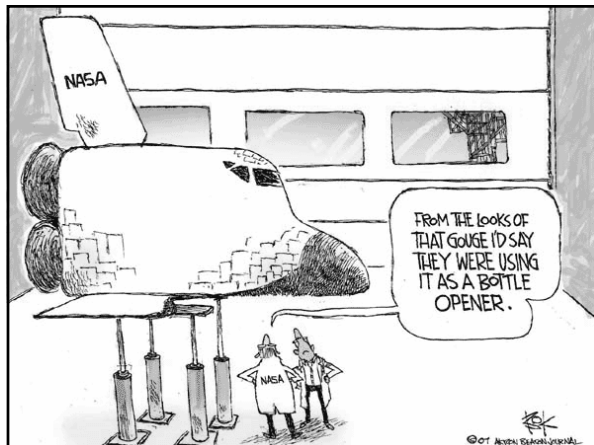


ASTR 4800: Space Science - Practice & Policy

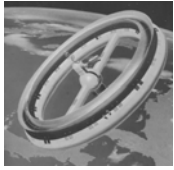
- Today's Topic: **Introduction to Outer Space**
- Homework: McDougall, Chapter 2 on the "Genesis of Sputnik"
- Begin thinking about topics for class PowerPoint presentation or participating in debates.
- Sign-up for "Space in the News"



Space Science and Science Fiction

Space Stations

Bonestell (1953)



Kubrick 2001 (1968)

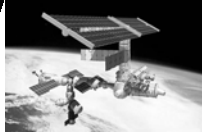


Movie Clip

MIR (1986 - 96)



ISS



Destination Moon (1950)



Space Telescopes

Bonestell



Hubble Space Telescope



War of the Worlds (1953)



Cat Women of the Moon (1953)



Introduction to Outer Space

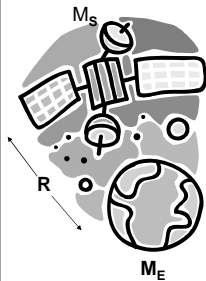
Explanatory Statement Prepared
by President Eisenhower's
Science Advisory Committee
March 26, 1958

Reasons for a Space Program?

- Compelling urge to explore and to discover. (Edmund Hillary)
- Development of space technology for defense (ICBMs, satellite spying).
- National prestige (create confidence of other nations in U.S. technology)
- Scientific observations and experiments enhancing knowledge of Earth, solar system, & universe.



Why satellites stay up



- $F=ma$, F =force, m =mass, a =acceleration.
 - For gravity, $F=GM_E M_s / R^2$.
 - $a = v^2 / R$, where v = orbital velocity.
- $\Rightarrow V = [GM_E/R]^{1/2}$

Homework for Monday:

Calculate orbital velocity (in miles per hour) for satellite that is 150 miles above Earth's surface.

What science can be done from space with a satellite (in 1958)? Which are still true today?

- Sample strange new environment (van Allen radiation belts, space weather, General Relativity experiments).
- Look down on the Earth (remote sensing, weather forecasting).
- Look out into the universe (X-rays, ultraviolet, infrared, long wavelength radio).

The Moon and Mars

- What is the origin and history of the Moon?
Fluid core? Nature of lunar surface?
- “We know quite enough about Mars to suspect that it may (have) supported some form of life”.



MARS
