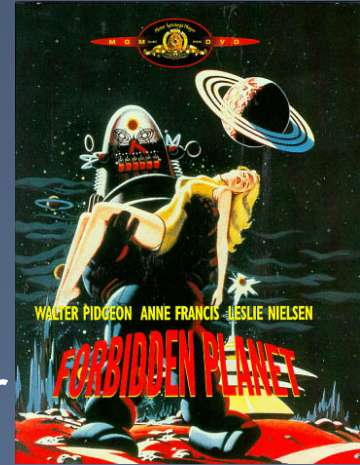


Using Science Fiction in the Classroom



Three Approaches

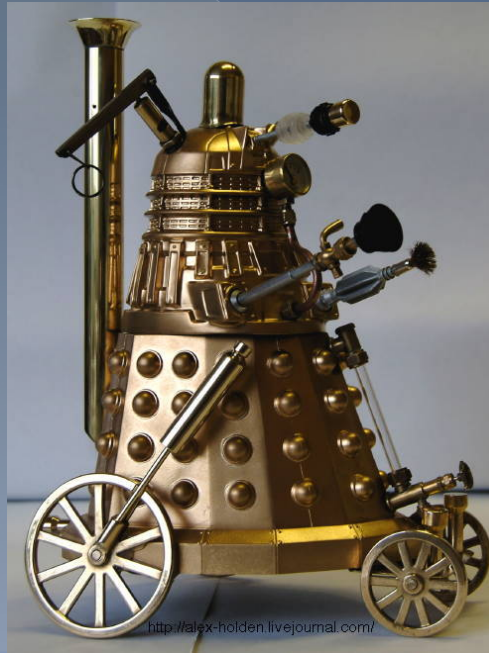
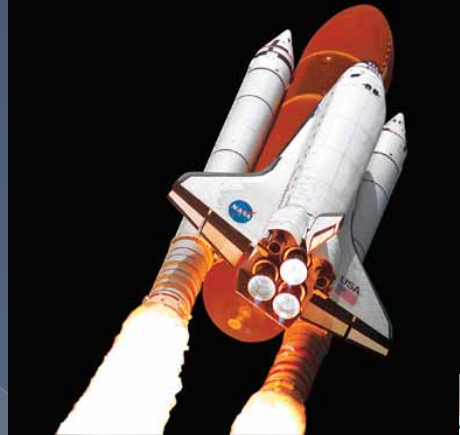
- Science fiction becoming science reality
- Bad science in science fiction
- Using science fiction as a starter for discussion



Science Reality

- Retro-futurism – are we now living in science fiction?

There are many examples of where science fiction has become science reality.



Star Trek



Authors who got it right



Aldous Huxley

cloning



Philip K. Dick

robots



Karel Čapek



Arthur C. Clarke

Communication
satellites



Jules Verne

From the Earth to the Moon, and the 1870 follow-up, *Around the Moon*, nailed a lot of the minutiae of a moon visit, including weightlessness, the basic size of the space capsule, the size of the crew (three men), and even the concept of splashdown into the ocean on return to Earth.



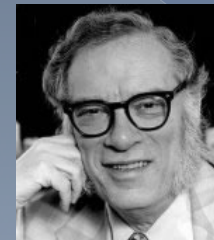
Robert A. Heinlein

waterbeds



William Gibson

cyberspace



Isaac Asimov

Miniature
surgery



David Brin

streaming audio and video
and clickable hypertext links

The Jetsons – unrecognised visionaries

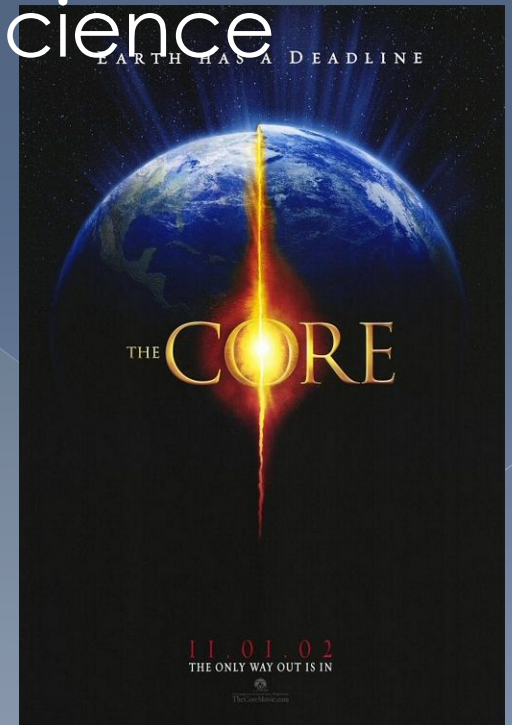
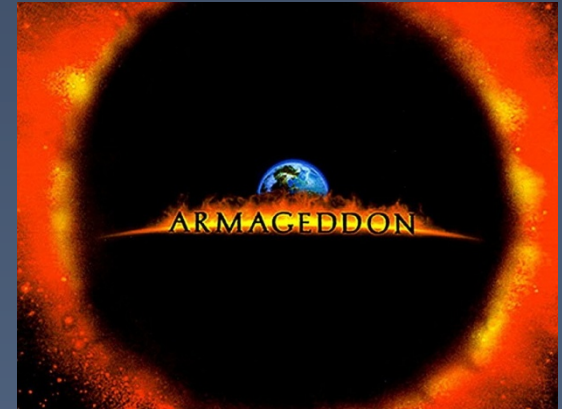
- Tanning beds, video chat, electronic media news, robot cleaners, food vending machines, talking alarm clocks.



Hollywood Science

- Where to start?

There is good science, bad science and
'you have got to be joking' science



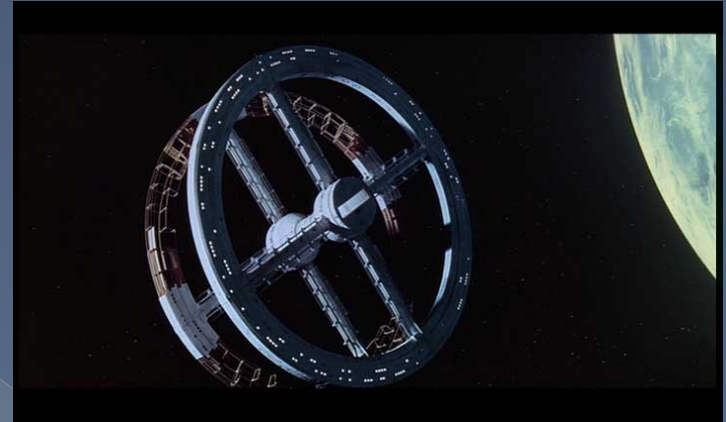


- The bad science can be used to examine the reality of how things might actually look and act. These movies are also fun to pull apart scientifically.



- The good science can be used as a teaching aid, an attention grabber, motivational tool.

It can also fit nicely into a science program as a resource,
-or as an assistant for yard duty.



- As an extension program, looking at the science in science fiction movies can be an interesting and engaging project

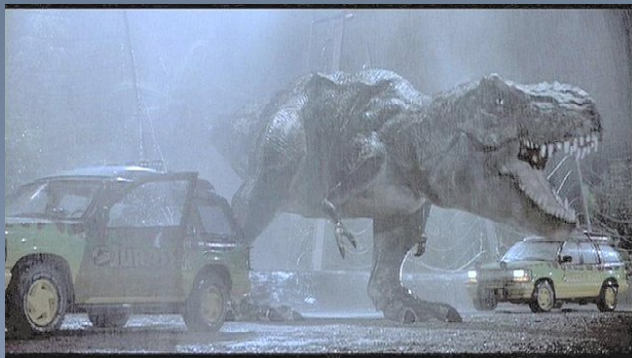
Physics Principle	Movie	Scene's Physics Quality	Scene	Classroom Activity
Kinematics (Acceleration from V vs t plot) Dynamics ($F=ma$, free body diagrams)	Speed 2: Cruise Control, Sandra Bullock, Jason Patric, Willem Dafoe Read Our Review	Bad	A ship crash into dock causing the movie's heroes to be tossed through the ship's windshield.	Answer whether the heroes should have been wearing seatbelts.
Kinematics (Falls)	Project A, Jackie Chan, Sammo Hung, Yuen Biao	Good	Jackie falls from a 3 story building through 2 awnings	Analyze velocities and acceleration during the fall. How fatal had Jackie landed slightly differently. (4)
Projectile Motion	Goldeneye,	Good	An unmanned airplane, a motorcycle and its driver all go off a cliff together	
Projectile Motion	Back to the Future III,	Good-Bad	A moving train plummets over a cliff.	
Projectile Motion	Speed, Keanu Reeves, Sandra Bullock, Dennis Hopper, Joe Morton	Ugly	A bus jumps a 50-foot gap in the road.	Calculate the angle and speed required to clear the gap.

<http://www.intuitor.com/moviephysics/>

Science fiction as discussion starter

- Science fiction has been used as morality/cautionary tales.

This fits in nicely with the National Curriculum where students are encouraged to be careful and critical observers of the scientific world.



Some websites

- ◉ <http://www.badastronomy.com/bad/index.html>
- ◉ <http://www.intuitor.com/moviephysics/>
- ◉ http://www.cracked.com/article_18846_6-eerily-specific-inventions-predicted-in-science-fiction_p2.html
- ◉ <http://drdianehamilton.wordpress.com/2010/12/03/10-sci-fi-predicted-inventions-that-actually-made-it-to-market/>