

Doctor Who

Science win or science fail?

Lindy Orthia

Australian National Centre for the Public Awareness of Science
lindy.orthia@anu.edu.au

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Doctor Who science win or science fail?

- Why does it matter?
- A bit about *Doctor Who*
- Three questions about *Doctor Who*'s representations of science's place in society

Three questions

1. Does *Doctor Who* more often depict scientists as good or evil?
2. Does *Doctor Who* favour magic and religiosity over atheist rationalism?
3. Does *Doctor Who* promote science education and open science communication?

→ Emphasis on ideologies of science
Is science 'a good thing' or 'a bad thing'?

Why does it matter?

Fiction can influence public perceptions of science

Ideological elements are taken most seriously

At the very least...

Fiction can frame science issues for public discourse

**[In the UK human cloning debate]
It was not politically viable to
resist the longstanding doom
scenario that science fiction has
constructed for human cloning at
least since *Brave New World*.**

Eric Jensen (2008)

The dao of human cloning.
Public Understanding of Science 17: 123-143

[An episode of *Peak Practice*] led to a dramatic increase in calls to [the Breast Cancer Care] telephone helpline, and the number of calls from ‘high risk’ women who were seeking advice for the first time.

Lesley Henderson &
Jenny Kitzinger (1999)

The human drama of genetics: ‘hard’ and ‘soft’ media representations of inherited breast cancer. *Sociology of Health & Illness* 21: 560-578

***‘I believe in religion, obviously,
but after watching that ... it
makes me want to question
everything’***

**- participant ‘Joe’ about
*The Simpsons: Lisa The Skeptic***

Orthia *et al* (2012)

Lindy A Orthia, Amy R Dobos, Tristan Guy, Shanan Z Kan,
Sian E Keys, Stefan Nekvapil and Dalton HY Ngu (2012)

How do people think about the science they encounter in fiction?
Undergraduates investigate responses to science in *The Simpsons*. *International
Journal of Science Education Part B* 2: 149-174

There is no easy way to determine the impact that a particular fiction text ... will have on a person's relationship to science. To assert, for example, that a scientist hero will always make science appealing to audiences is to engage in dangerous oversimplification.

Orthia *et al* (2012)

Why does it matter?

Doctor Who was intended to be sciency

Doctor Who has inspired engagement with science

(at least anecdotally - very few
human participant studies)

All the stories were to be based on
scientific or historical facts.

Sydney Newman
BBC Head of Drama, 1963

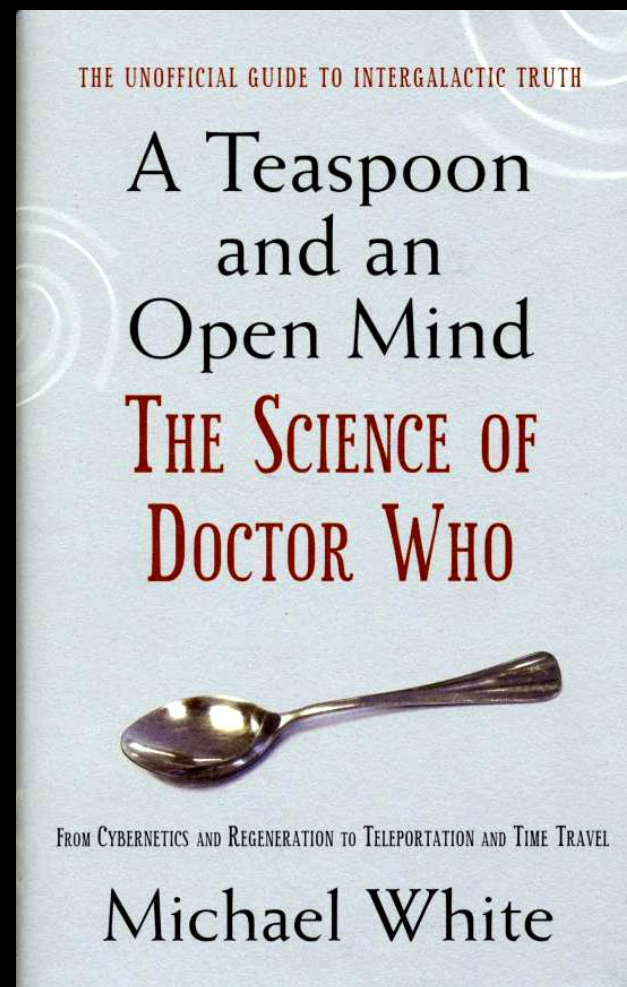
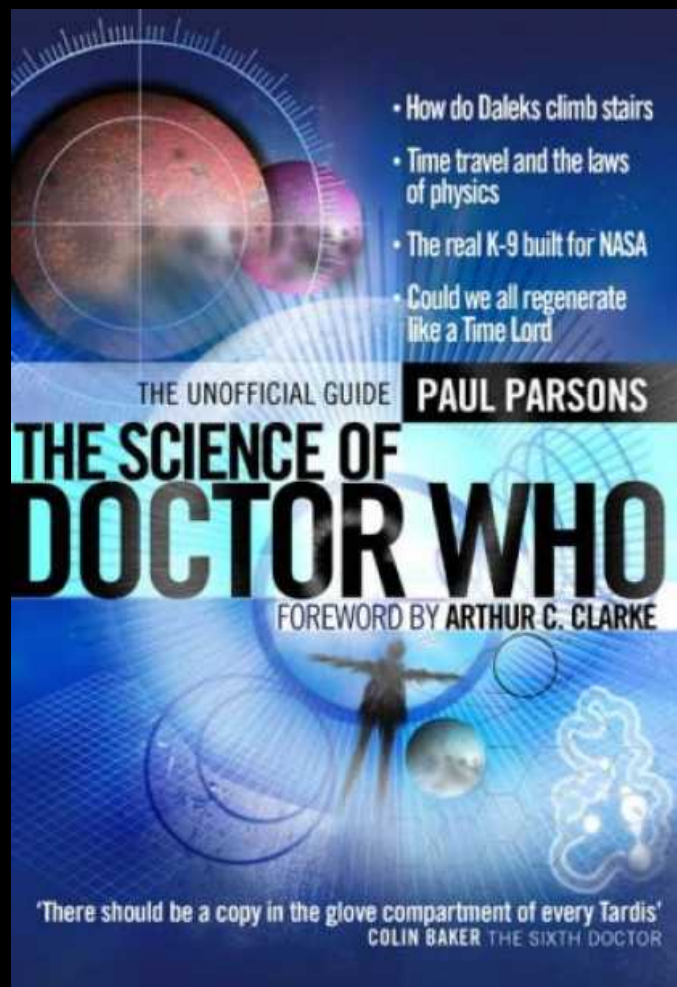
http://www.televisionheaven.co.uk/Sydney_Newman.htm

At the time I was obsessed as a
scientist by the differences and
similarities between the
human brain and advanced
computer machines ...
And so the Cybermen
appeared.

Kit Pedler
medical scientist &
1960s *Doctor Who* writer

We did *try* to put some kind of scientific thing in, but the stories were much more purely entertainment I think than science.

Verity Lambert
Doctor Who producer 1963-65



It is as instructive as it is
entertaining. I suggest
that you buy a copy.

Sir Patrick Moore, 2006
Times Higher Education Supplement


<http://www.timeshighereducation.co.uk/204702.article>

If I was a teacher I would
start with a chunk from
Doctor Who ... and say,
'Actually, what was that all
about and how is our
textbook relevant to that'?

Malcolm Wicks, 2007
UK Science Minister



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Now see exhibits from the Series 3 episode 'Blink', including a screaming Angel!

Doctor Who Up Close at Manchester now extended to 6th January 2008 by popular demand!

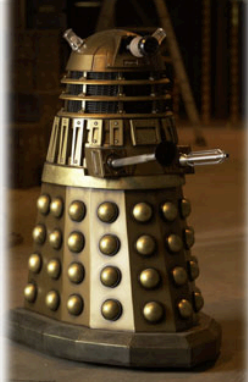


Daleks in Manchester for world record attempt



Daleks from around Britain are being called to take part in a record breaking attempt at the Museum of Science and Industry (MoSI). Manchester-based MoSI currently hosts the Doctor Who Up Close exhibition and hopes to attract a record number of Daleks to visit the Museum on 26 August 2007. The Daleks which come to the historic gathering will have the chance to meet the original Dalek designer – Raymond Cusick too. To fulfil the Guinness Book of Records criteria, MoSI must attract 50 or more Daleks – people dressed in costumes which 'closely resemble a Dalek'. For more information visit www.msim.org.uk or email s.roe@mosi.org.uk

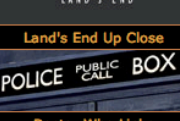

BUY ONLINE AND GET FAST-TRACK ENTRY TO THE EXHIBITION - see www.ticketweb.co.uk

Please see Museum website before travelling a long distance as tickets are selling out early each day, buy online to pre-book your visit to this exhibition www.msim.org.uk







<http://www.mosi.org.uk/>



Bringing science to people and people to science

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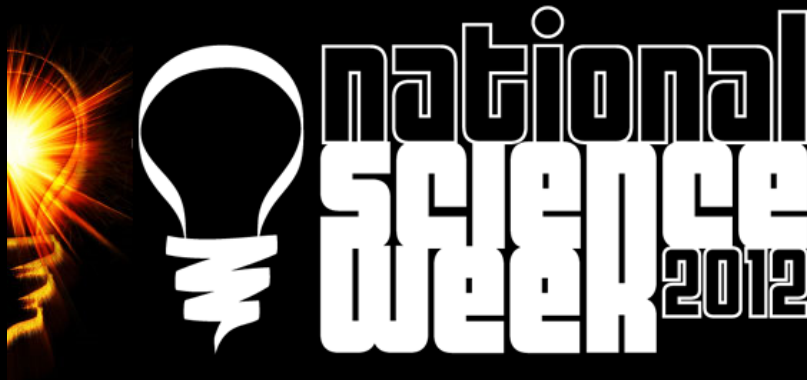
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Science Of Fiction: Doctor Who



<http://riaus.org.au/events/science-of-fiction-doctor-who-canberra/>

[*Doctor Who*] was our inspiration as children to pursue scientific careers and ultimately become 'Doctors' via the PhD route

Authors of 'Sci-Fi Science' website
<http://scifiscience.co.uk/doctorwho/intro.html>

Sci-Fi Science | The True Science Behind Science Fiction

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it was clear that ... the ideological dominance of technological rationalism generated real pleasure for the fans. Their sense of the Doctor was as a modern-day knight bringing the 'new principles of physics and mechanics' to the post-medieval world. ... [T]hese are the liberal believers in a universal, rational society; ... their Doctor is the hero of enterprise, innovation and technology 'liberating static, isolated, feudal societies'.

John Tulloch, 1995

in Tulloch & Jenkins,
*Science Fiction Audiences:
Watching Doctor Who and Star Trek.*
London: Routledge, p. 60



All of this suggests *Doctor Who* has more than a negligible impact on public discourse about science

Worth looking deeper at its representations of science

A bit about *Doctor Who*

Longest running science fiction
television series in the world

Original series	1963-1989
New series	2005-ongoing

>230 serials

other spin-off media - films, novels, audio-plays etc

A bit about *Doctor Who*

Longest running science fiction
television series in the world

Original series	1963-1989
New series	2005-ongoing

my scope: the TV series
mostly 1963-89, 2005-09

A bit about *Doctor Who*

Main character- Time Lord called 'The Doctor'
Alien who travels through time and space doing good
Played by eleven actors

Actively identifies himself
as a scientist?

✓	✓	✓	✓	✗	✓	✗	✗	✗	✗	✗
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th

Actively identifies himself as a scientist?

1960s	1970s	1980s		1996	2000s-2010s					
✓	✓	✓	✓	✗	✓	✗	✗	✗	✗	✗
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th

UK trust in scientists plummeted in 1980s and 90s

Sheila Jasanoff (1997) Civilization and madness.
Public Understanding of Science 6: 221-232

Barry Barnes (2005) The credibility of scientific
expertise in a culture of suspicion.
Interdisciplinary Science Reviews 30: 11-18



Doctor Who as a manifestation of science's
real life failure to maintain public trust

A bit about *Doctor Who*

The Doctor noted for his anti-violence,
brains over brawn approach

*‘I was attracted to the misanthropic anti-establishment character of the Doctor, and the unique odds of his adventures — a single person pitting **wits against brawn**’*

*‘[The Doctor] is a renegade, cruising around, finding problems and making them right with his **vast knowledge and skills.**’*

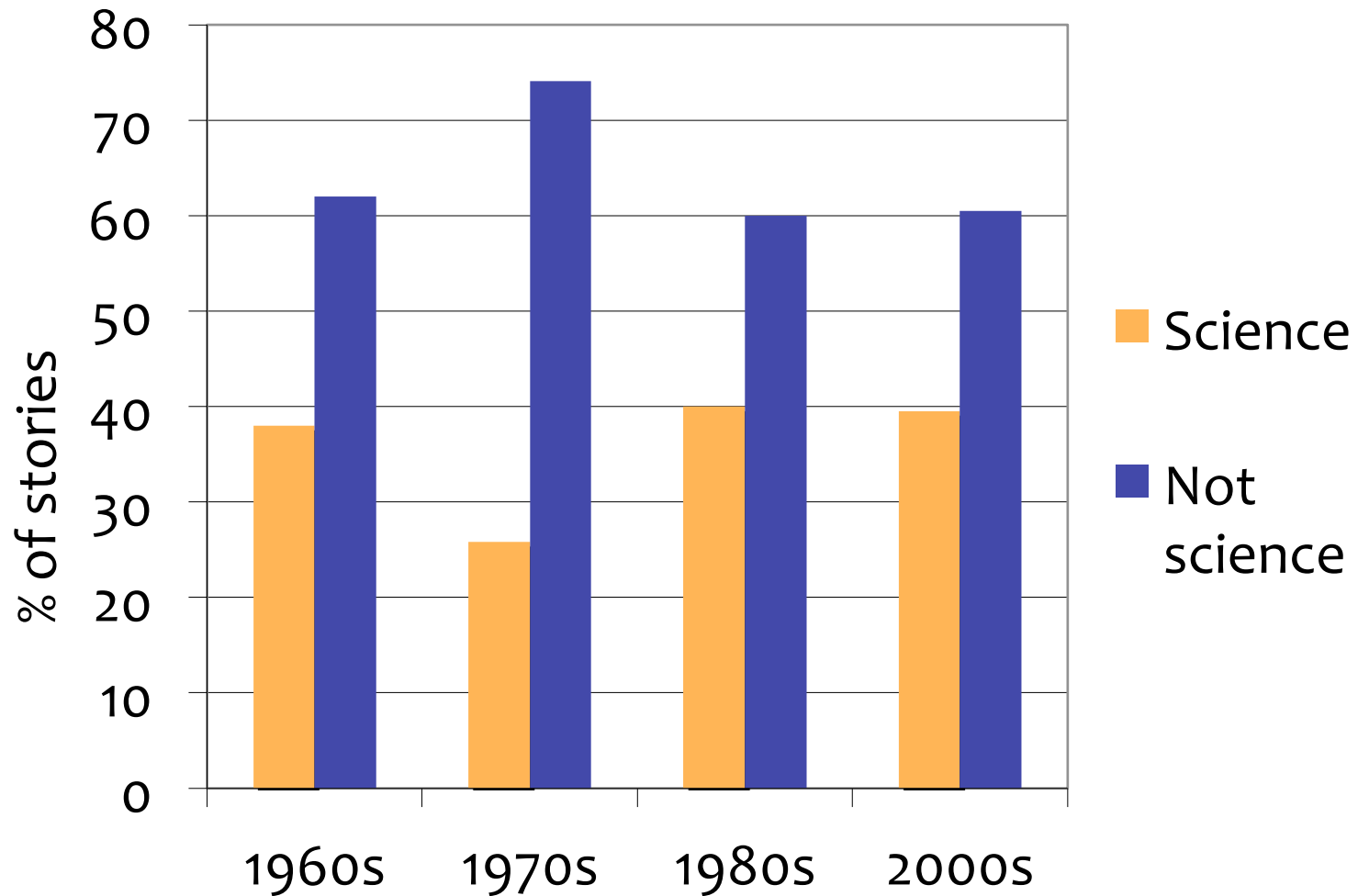
*‘I was drawn to the Doctor because he **always resolved conflicts using his head and relied little on brute force and violence.** I love the cerebral nature of it!’*

responses to survey by Nivair H Gabriel, 2008

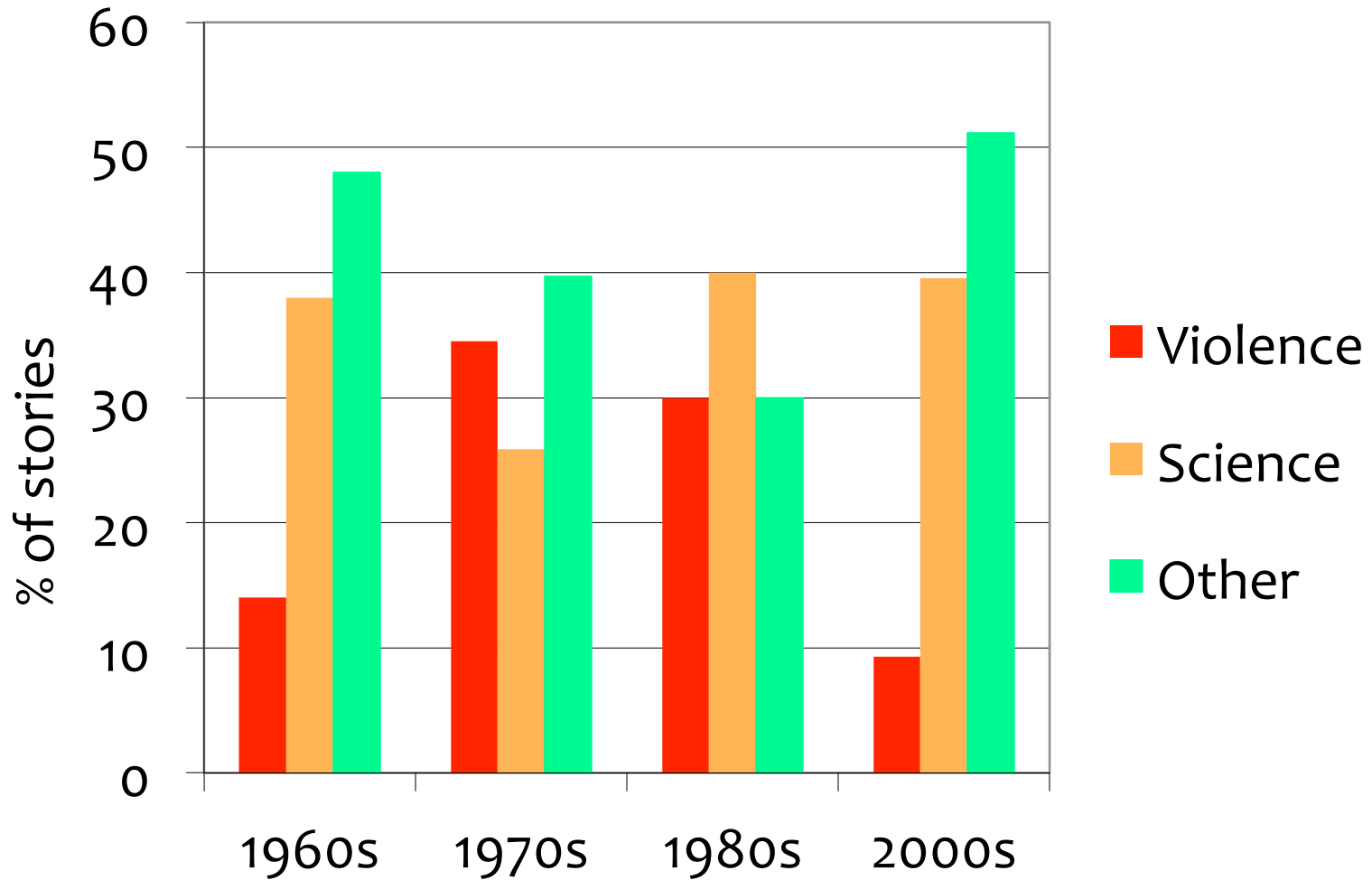


Dreams of Doctor Who and Star Trek fans
vs. the realities of their lives. io9.
<http://io9.com/391110/dreams-of-doctor-who-and-star-trek-fans-vs-the-realities-of-their-lives>

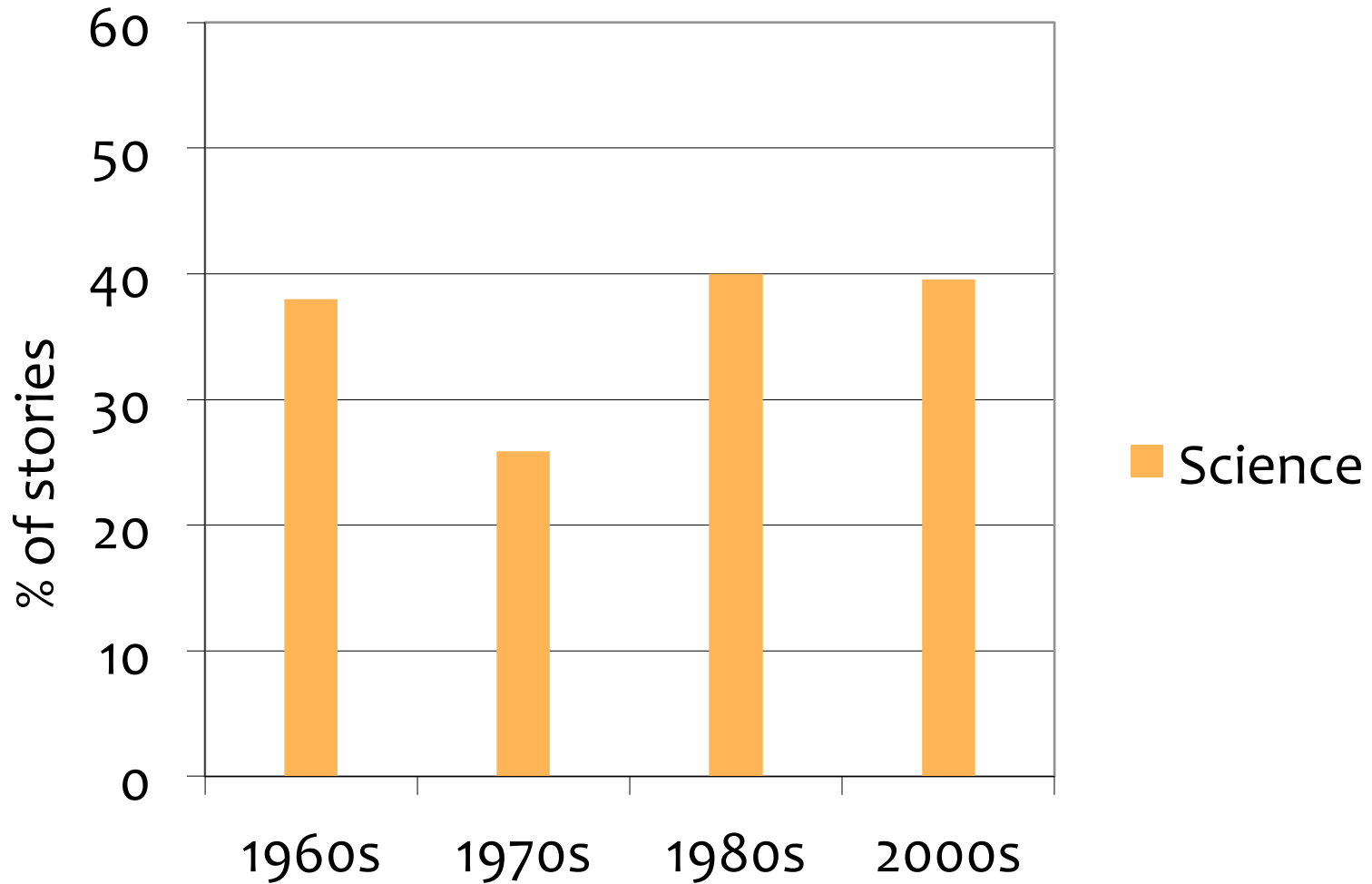
Plot resolution factors 1963-2008



Plot resolution factors 1963-2008



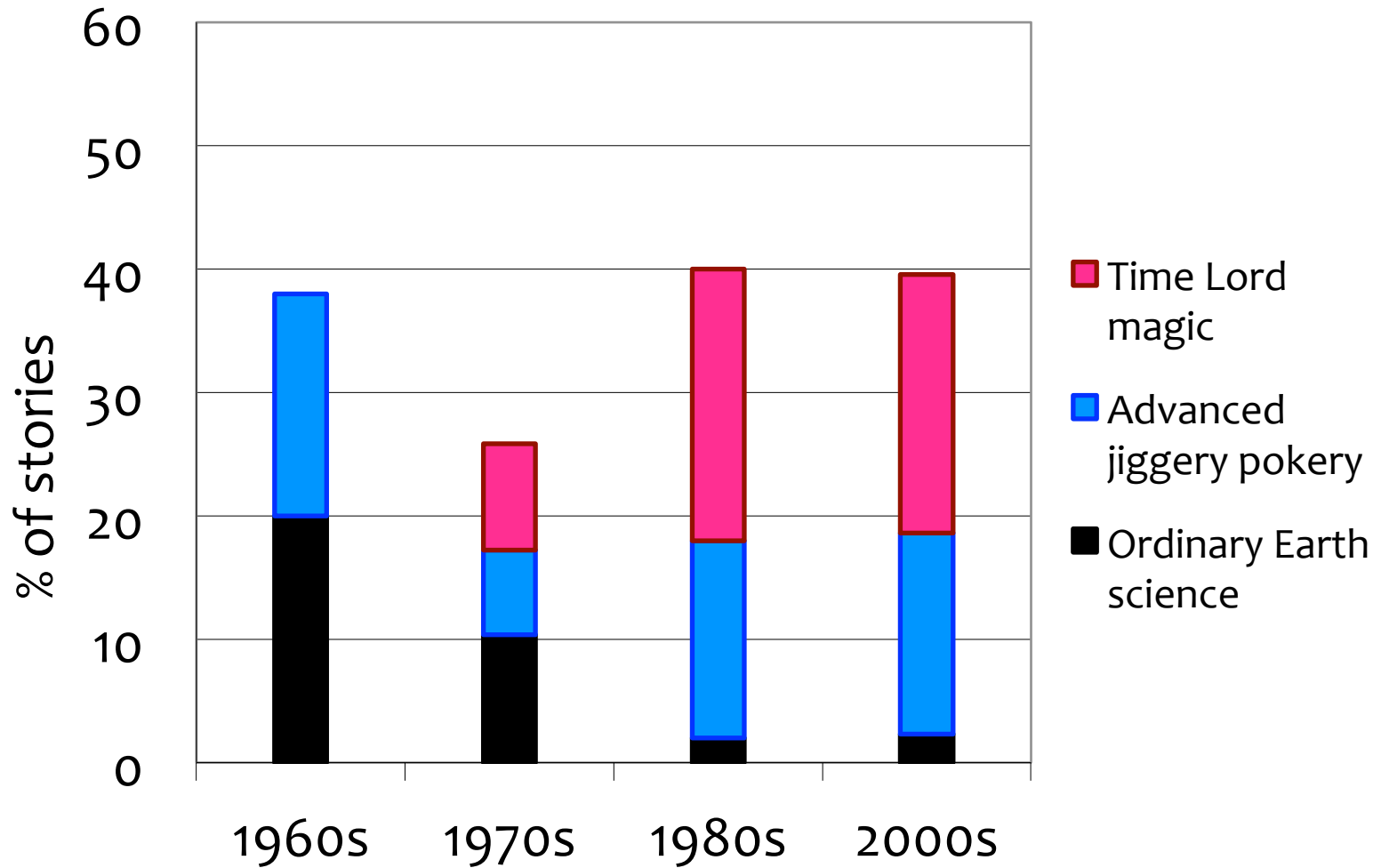
Plot resolution factors 1963-2008



Three kinds of science

1. Ordinary Earth science
2. Advanced jiggery pokery
3. Time Lord magic

Three kinds of science





Only if you're expecting more science to be there

There are other kinds of
'using your head' or 'wits' than science
→ knowledge of human nature,
emotions and the urge to freedom

A bit about *Doctor Who*

The Doctor has encountered
>200 scientist characters

In story after story in Dr. Who, “pure” or “cold” science is used to maintain or establish a totalitarian political order. Science is a means of power in an intergalactic version of feudal society. The Doctor typically defeats a totalitarian, scientific antagonist and replaces him or her with a liberal democratic humane scientist to take over and bring justice and freedom to the oppressed serf class.

John Fiske, 1984

Popularity and ideology: A structuralist reading of Dr. Who. In W.D. Rowland Jr and B. Watkins (eds), *Interpreting Television: Current Research Perspectives* (pp. 165-198). Beverly Hills: Sage Publications, p. 173

Scientist characters

Good barometer of ideological message of story

→ Doctor approves of them or their work

✓ science good

→ Doctor condemns them or their work

✗ science bad

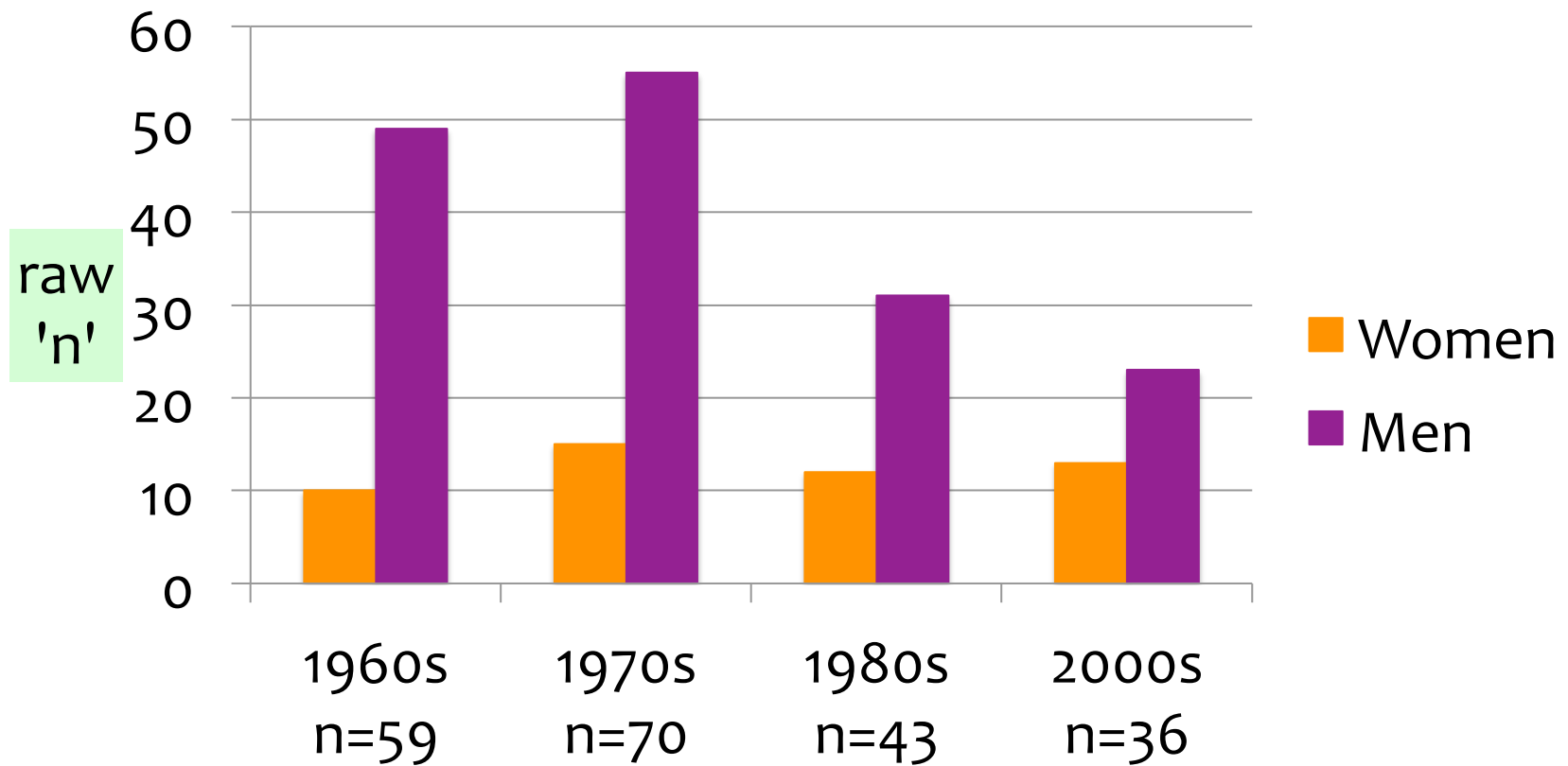
→ Doctor & scientists teach us 'ideals'
for science-society relationship

Gender of scientist characters

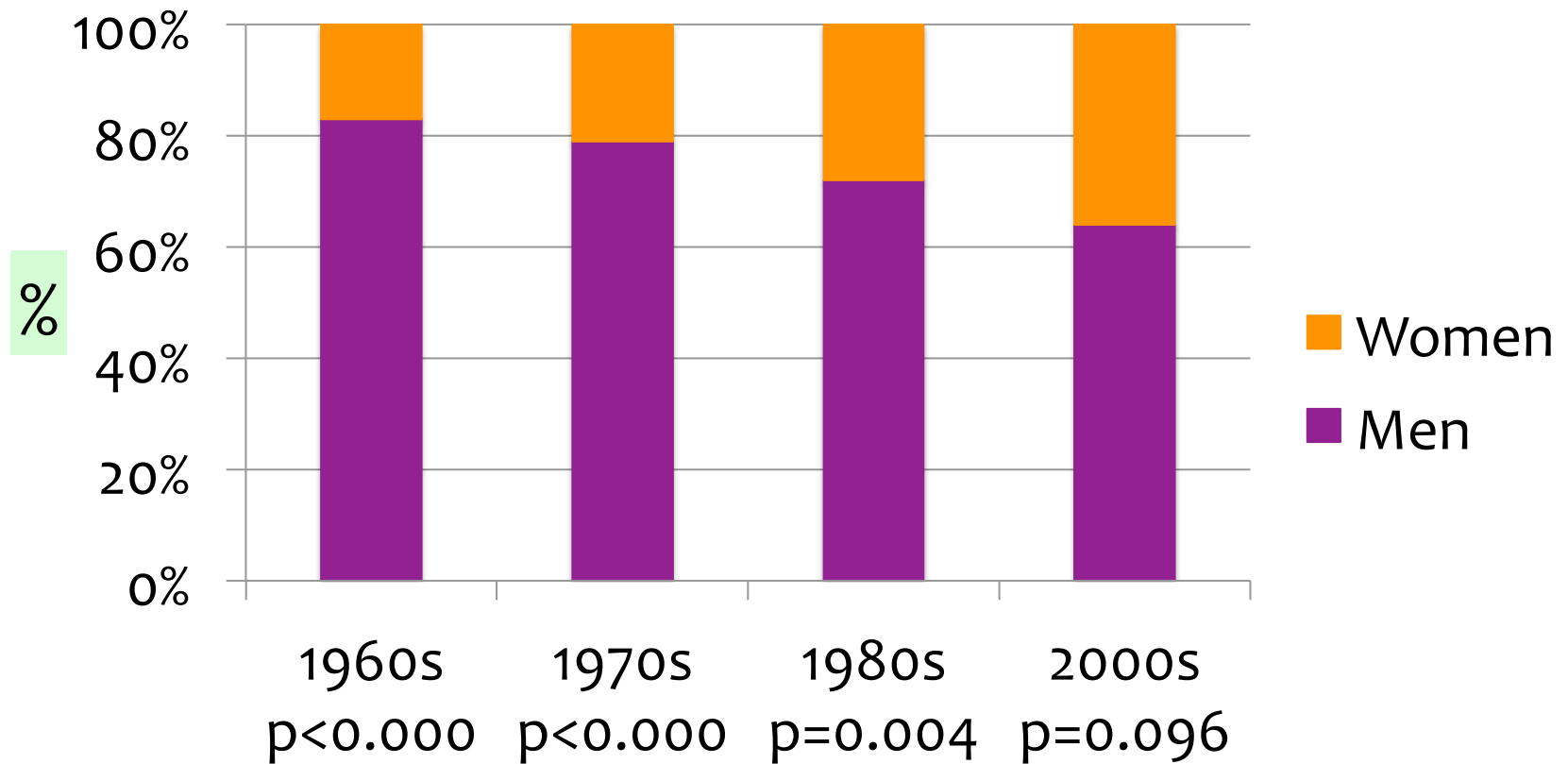
of the 208 human-like characters 1963-2009...

(ignoring the possibility of
intersex or transgender identity
- all overtly intersex or trans
characters are non-human-like)

Gender of scientist characters



Gender of scientist characters





Doctor Who reflects science's real life gender imbalance
which perpetuates sexist stereotypes



new series exhibits less inequality
Doctor Who attempting to redress
gender imbalance and stereotyping
through casting

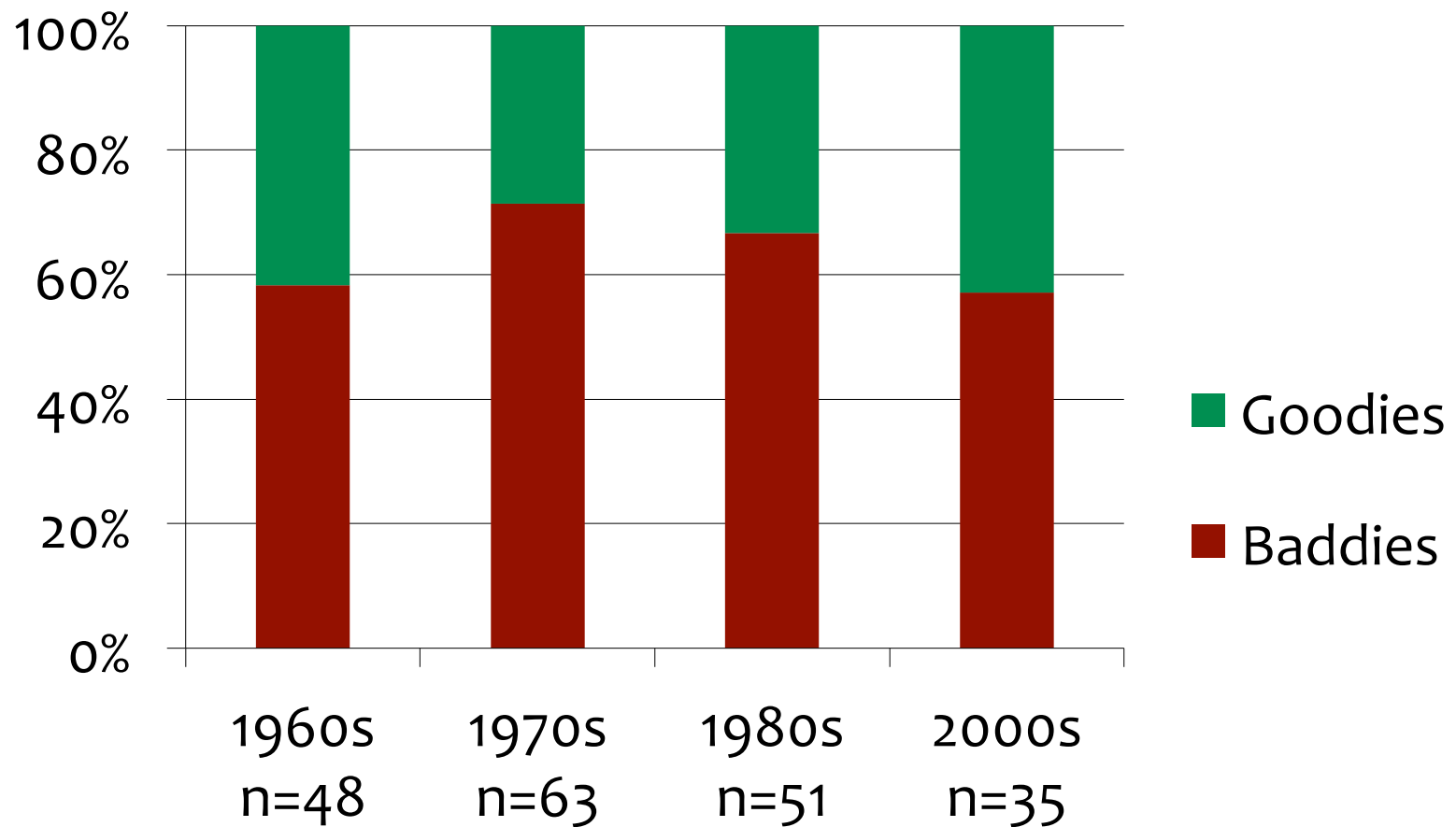
Three questions about
Doctor Who's representations
of science's place in society

Each potentially relevant to concept of
'science win' or 'science fail'

1.

Does *Doctor Who* more often depict scientists as good or evil?

Doctor Who scientist goodies and baddies 1963-2009



The Green Death (1973)

New Earth (2006)

“Like many scientists,
I’m afraid the Rani
simply sees us as
walking heaps of
chemicals. There’s no
place for the soul in
her scheme of things.”

The Mark of the Rani (1985)

“... the architect of the
industrial revolution ...
Without his genius
your precious
twentieth century
would be a much
sorrier place. ”

“Thomas Telford,
Michael Faraday,
Humphry Davy!
Many of the greatest
practical talents the
human race has ever
produced.”

The Mark of the Rani (1985)

“You and I are scientists,
Professor. We buy our
privilege to experiment at
the cost of total
responsibility.”

Planet of Evil (1975)

Doctor says of Magnus Greel:

“scientific ignoramus”

“so-called technology”

“technological cul-de-sac”

“the twisted lunacy of a
scientific dark age”

The Talons of Weng-Chiang (1977)



Doctor Who has a lot of villainous scientists who do some dastardly things and reveal science's errors



Doctor Who's hero scientists (including the Doctor) counterbalance the villains, and mostly scientists are framed in a positive light

2.

Does *Doctor Who* favour magic and religiosity over atheist rationalism?

Hide (2013)

Gothic Horror period (1975-77)

“I too used to believe
in magic. But the
Doctor has taught me
about science.
It is better to believe
in science”

Horror of Fang Rock (1977)

The Romans (1965)

The God Complex (2011)

Snakedance (1983)

Planet of Fire (1984)

set in “the period between the
dark ages of superstition and the
dawn of the new reason”

the revival of an old religious cult
will endanger a meeting of
“scholars, artists, men of the
new sciences”

and throw society
“back into a new dark age”,
“interfere with Earth’s progress”
and turn humanity into “idle,
mindless, useless sheep”

The Masque of Mandragora (1976)

“Free? With your people imprisoned by ritual and superstition?”

The Curse of Peladon (1972)

The Creature from the Pit (1979)



Doctor Who promotes critical thinking, skepticism and empiricist rationalism about supernatural phenomena



Doctor Who promotes Eurocentrism and cultural erosion by universalising a rationalist, anti-religious and industrial 'revolution' as necessary and inevitable
- apologist for colonialism

3.

Does *Doctor Who* promote science education and open science communication?

An Unearthly Child (1963)

The Krotons (1968-69)

Full Circle (1980)



Doctor Who promotes access to scientific knowledge and frames learning as a democratic entitlement



Doctor Who suggests scientific education is essential to democracy, which is not true

Final words from the Doctor

“Everything that’s happened in life
must have a scientific explanation.”

- *The Dæmons*, 1971

“To the rational mind nothing’s inexplicable,
only unexplained.”

- *The Robots of Death*, 1977

Final words from the Doctor

“Logic, my dear Zoe, merely enables one to be wrong with authority.”

- *The Wheel in Space*, 1968

“One good solid hope’s worth a cartload of certainties.”

- *Warriors’ Gate*, 1981

Conclusion

Doctor Who is neither wholly anti-science nor wholly pro-science

It is INTERESTED in science

 makes science accessible to viewers

 opens discussions about science

 explores science

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Thank you!

Thanks to Felix Bloomfield for the invitation

For further reading see lindyorthia.com

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