

Philosophy is like being in a dark room and looking for a black cat.

Metaphysics is like being in a dark room and looking for a black cat that isn't there.

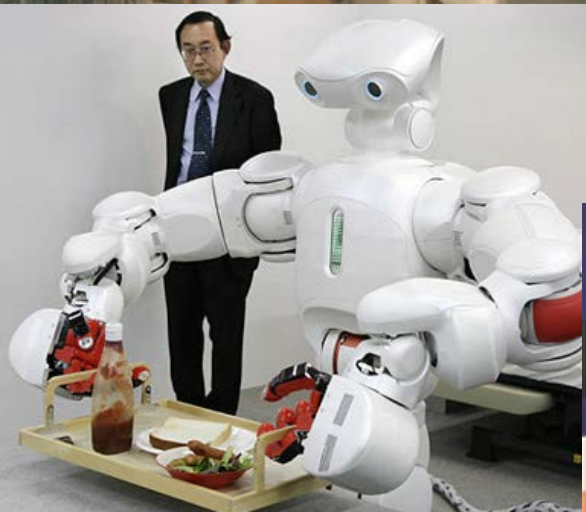
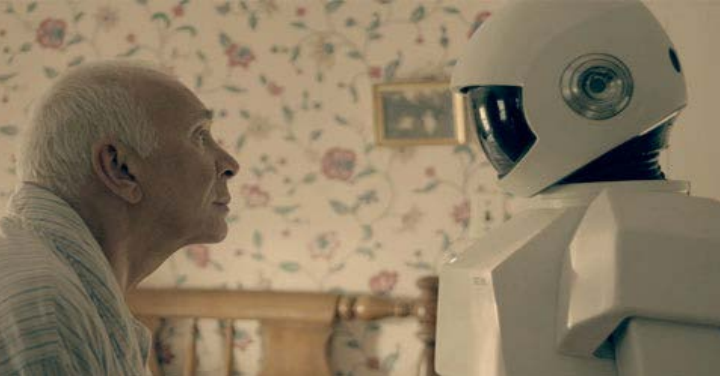
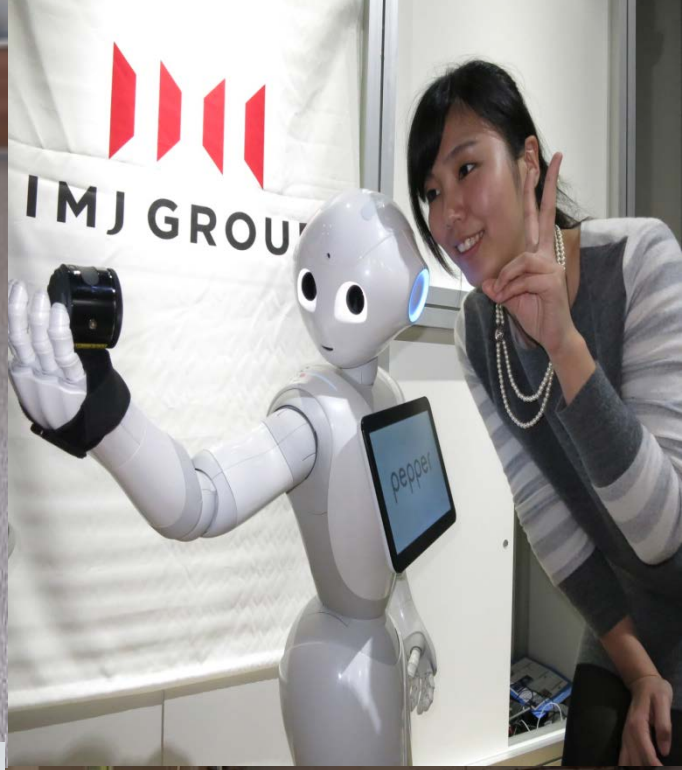
Theology is like being in a dark room and looking for a black cat that isn't there and shouting "I found it!"

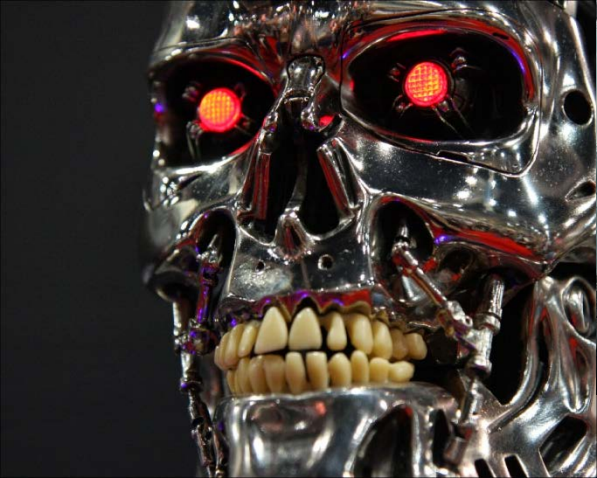
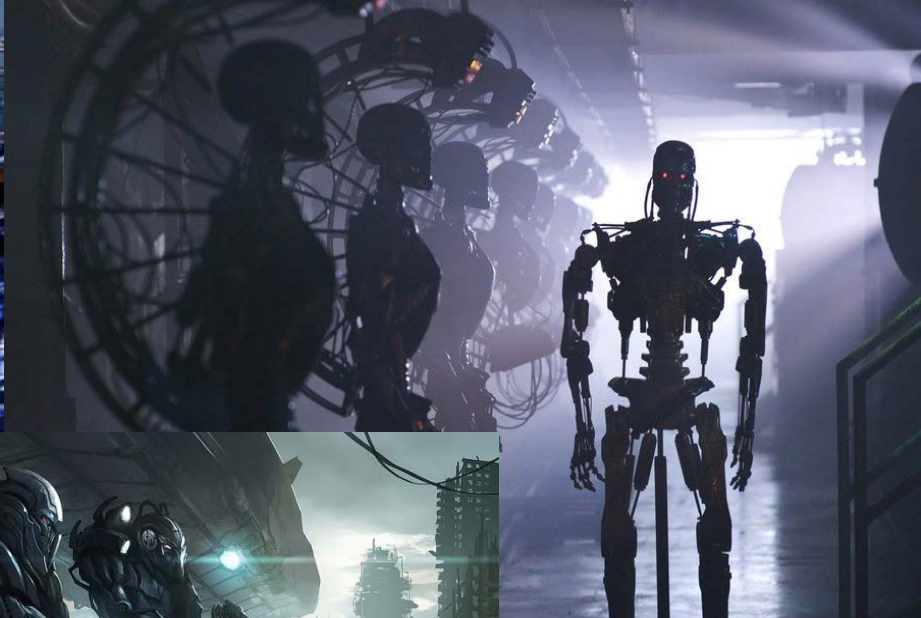


Science is like being in a dark room and looking for a black cat using a flashlight.

Science and Philosophy – differences and similarities

<u>Science</u> (scientia = knowledge)	<u>Philosophy</u> (philo = love sophia = wisdom)
REASONING, QUESTIONING, ANALYSIS	REASONING, QUESTIONING, ANALYSIS
Natural phenomena	Nature of man, existence and relationship between the two
EXPLAIN SITUATIONS AND FIND ANSWERS	EXPLAIN SITUATIONS AND FIND ANSWERS
Empirical data	Logical argument
Proves answers objectively right or wrong	Does not apply standard measurements and observations
Experiment results, observable facts, objective evidence	Arguments of principle
Finds answers	Generates questions
Creates knowledge through OBSERVING	Creates knowledge through THINKING
A defined area of study	Applied to many disciplines





ROBOTS

<u>EAST</u>	<u>WEST</u>
Love robots	Fear robots
Human-like machine	Instrument-like machine
Cultural history	Cultural history
Non-human entities have soul/spiritual essence; social acceptance; Anime cartoons	Dangerous, wilful construct; uncontrollable; aggressive
Enhance everyday life; benevolent companions; help ageing/dependent population	Use in difficult/dangerous situations, space exploration, security, military



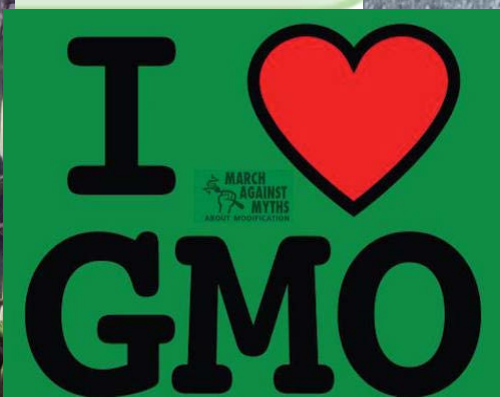
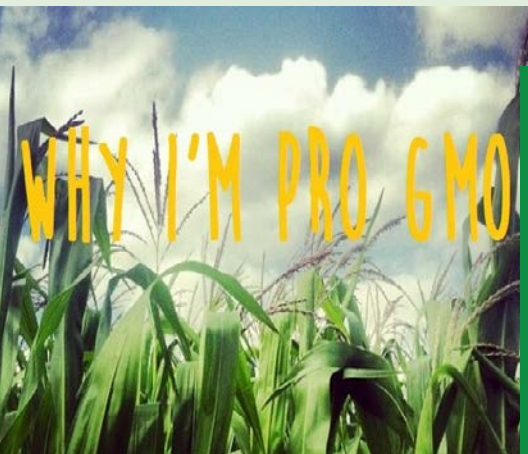
I am STRONGER than any natural Tomato, I GROW FASTER and LAST LONGER.

“

[GM] crops are basically the same, so to suggest that there's anything fundamentally different about them is just stupid

- Jonathan Jones PhD

”



Top 10 Genetically Modified Foods



Corn



Soy



Cotton



Papaya



Rice



Rapeseed (Canola)



Potatoes



Tomatoes



Dairy products



Peas

**NO GENETIC
EXPERIMENTS
GREENPEACE**

PROTECTOR SUR LA
BIOSÉCURITÉ
MIEUX VAUT PRÉVENIR
QUE GUÉRIR
PRINCIPE - PRÉCAUTION

**DO NOT
CHOOSE MY
DESTINY
FOR ME.
LABEL GMO FOODS**

**Not just ON
your food...
it also IN it**

+ **do you want it?**

STOP GMO'S

**DO NOT
CHOOSE MY
DESTINY
FOR ME.
LABEL GMO FOODS**



**MONSANTO
HOME OF GMOS
& AGENT
ORANGE**

**FOOD FOR PEOPLE
NOT FOR PROFIT**

GM Food Controversy

- Everyone eats
- Technology developed “under the radar” – public unprepared
- Technology brought to market with no warning
- UK Public consultation (“GM Nation”) backfired
 - Conducted as products brought to market
 - Attitude: “opposition will eventually be worn down”
 - Assumed scientific arguments would overrule everything
 - Underplayed genuine uncertainties (e.g. cross-contamination) – leading to mistrust
 - Consultation captured public concerns – which were then ignored
 - “patronising” and “complacent” culture
- Different reactions (often linked to food availability) but also “corporate greed”
- Industry mishandled introduction of GM food in Europe
- Arguments still raging



Designer Babies

Parents can now pick a kid's sex and screen for genetic illness. Will they someday select for brains and beauty too?

By MICHAEL S. LEWIS

UNTIL JUST A FEW YEARS AGO, MAKING A BABY BOY OR A BABY GIRL WAS PURELY NATURE'S BUSINESS affair. Not anymore. Parents who have access to the latest genetic testing techniques can now prearrange their baby's sex with great accuracy—or Montagu and Bert Collins learned to their delight two years ago, when their long-awaited daughter Jessica was born after genetic prearranging at a fertility clinic in Fairfax, Va.

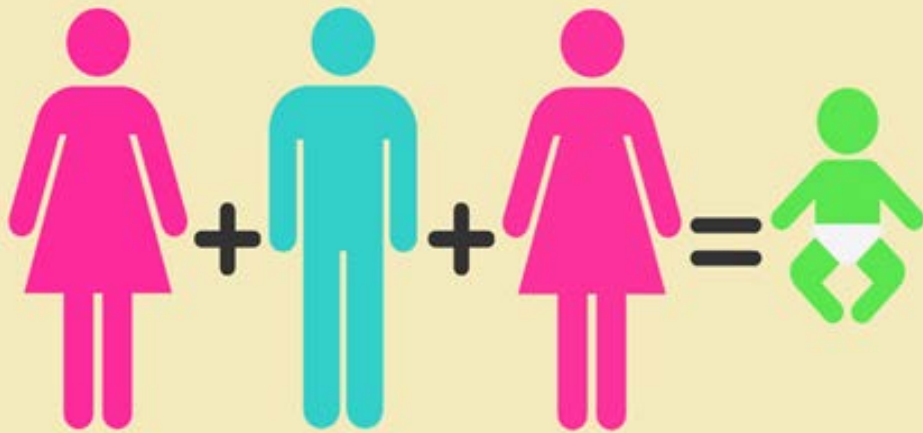
And baby Jessica is just the beginning. Within a decade or two, it may be possible to screen kids almost before conception for an enormous range of attributes, such as how tall they're likely to be, what color their hair will be, how fast they'll run, how good they'll be at math, and so on.

In fact, a gene therapy firm in the process, parent that would be able to go beyond picking sex and screening for genetic illness and actually screen for traits like intelligence and athletic ability. And that's not all. In fact, the firm has been selected to do a trial of a gene therapy that would be able to go beyond picking sex and screening for genetic illness and actually screen for traits like intelligence and athletic ability. And that's not all. In fact, the firm has been selected to do a trial of a gene therapy that would be able to go beyond picking sex and screening for genetic illness and actually screen for traits like intelligence and athletic ability.

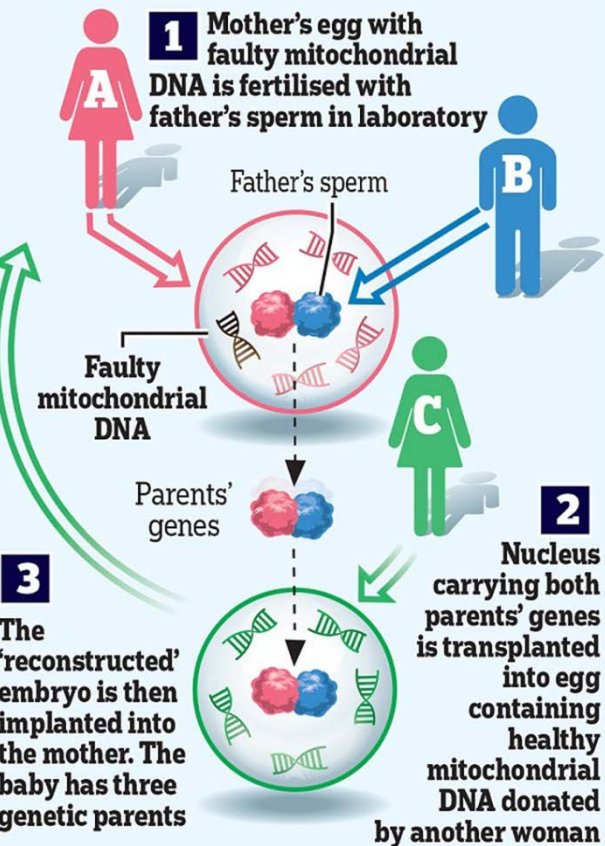
WHAT PEOPLE THINK

Some see a bright future for genetic engineering, but others see a dark future. Some see a bright future for genetic engineering, but others see a dark future. Some see a bright future for genetic engineering, but others see a dark future.





THE SCIENCE...



www.bbc.co.uk

Three-person IVF baby for infertile couple - BBC News



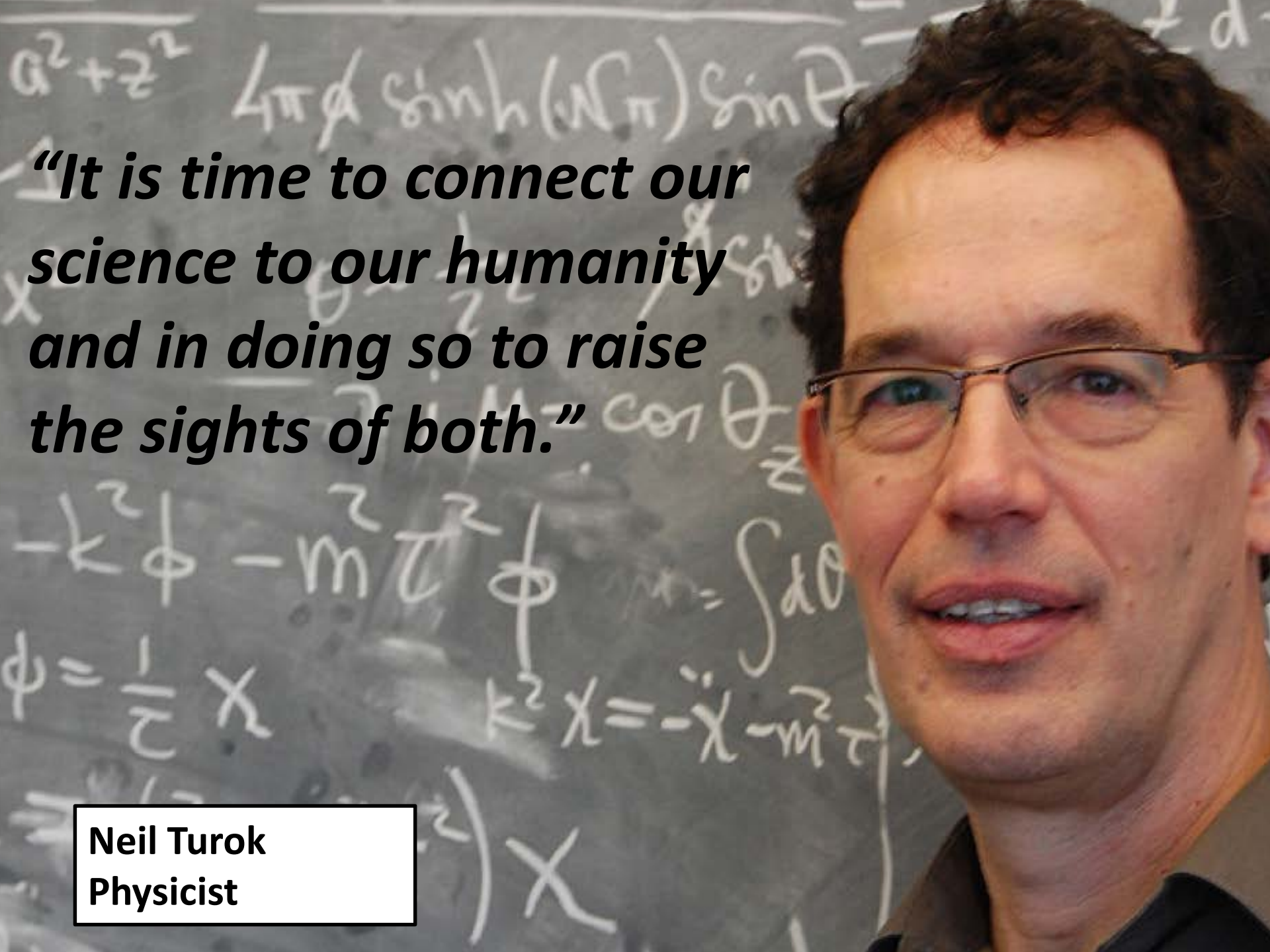


Mitochondrial Research Debate

- Foundation of Centre for Life as GM Nation occurred
- Integration of ethics/public engagement with research
- Successive ethical issues, e.g. Therapeutic Cloning Licence (2004)
- Long-term commitment to engagement:
 - Regional engagement (Centre for Life + community venues)
 - Specialist engagement (scientists + clinicians, ethicists, religious leaders, patient groups)
 - Policymaker engagement (e.g. events in UK Parliament)
 - Slow, steady process building trust through open dialogue
- Small steps: new licences under existing law before regulator requested clarification (and ultimately new legislation)
- Decisions ultimately made by 650 non-scientists (UK Parliament)

Lessons Learned

- Science is not ***THE ANSWER*** to anything
- Cultural forces are bigger than organisations or sectors
- Embed culture of engagement rather than manage a crisis
- Don't underestimate power of local context
 - “our” innovations are less threatening than “their” impositions
 - Science centres CAN play an important role but
 - Science centres DON'T need to lead
- Only providing information to “educate” people who disagree backfires and leads to mistrust

A portrait of Neil Turok, a physicist, wearing glasses and a dark shirt. He is positioned on the right side of the frame, looking slightly to the left. The background is a chalkboard filled with handwritten mathematical equations in white chalk. The equations include $a^2 + z^2$, $4\pi \rho \sinh(N\pi) \sin\theta$, $\cos\theta$, z , $-k^2 \phi - m^2 \tau^2 \phi$, $\phi = \frac{1}{\tau} \chi$, and $k^2 \chi = -\ddot{\chi} - m^2 \tau^2 \chi$.

“It is time to connect our science to our humanity and in doing so to raise the sights of both.”

Neil Turok
Physicist