

CATALYST SEASON 21

**AUSTRALIA'S
FLAGSHIP SCIENCE
DOCUMENTARY
SERIES IS BACK**

with a fresh hour-long format to
inspire audiences and showcase
high impact stories

HD 6 x 60'
Australian Broadcasting Corporation | Catalyst

CATALYST

HOW YOUR FOOD WORKS

The science hidden inside the foods we love can help us cook better and eat healthier



HD 2 x 60'

With a team including a chef, chemist and dietician, **this fun and fascinating 2-part series take a closer look at the foods we all love**, with some surprising results. Exploring the **latest scientific research** behind how they are grown, processed or cooked, the series illustrates that **understanding how food works can help us eat healthier (and tastier!)**.

The first episode profiles a variety of one of the world's most popular fruits, **the banana, currently under threat of extinction** from a fungal disease. **Visiting the scientists cultivating new varieties of disease resistant bananas**, it appears that **the perfect combination of flavour and texture is within their sights**. The traditional craft of fruit **preservation is supersized in the production of canned baked beans** – and the team uncovers **whether or not the process can actually increase the nutritional value** of some canned goods. Physics and biology come into play in **the science behind cooking the perfect medium-rare steak**. A world of cascading chemical reactions is unveiled in **a revolutionary new experiment that looks at how to get the flavour and texture of your steak just right**. In the second episode, **cutting-edge science helps us to freeze fish so that they taste almost as good as when fresh**.

To see how far technology has come, a panel of sashimi lovers are subjected to the ultimate taste test: to see if they can taste the difference between fresh and cryogenically frozen kingfish. **The scoop on why humans are hard-wired to desire junk food could be answered by the gelato-making process and a simple, mathematical formula**. A specific ratio of carbohydrates, fats and salt can **deliver the 'bliss point', targeting our brains' reward system**, and releasing the endorphins that makes us feel good. In stunning vineyards, **sparkling wine is put under the microscope in the hope that every year will deliver a good vintage**, and the **chemistry of different hot and spicy foods provides some startling insights**. Finally, a better understanding of some **unusual crops could see them become the supermarket produce of the future**.

As the team discovers that **by understanding how our food works** – down to a cellular or even molecular level, **we're empowered to find better ways to improve flavour, eat healthier and make better decisions about what we eat**. **This entertaining, eye-opening series will ensure you look at your favourite foods in a whole, new light**.

TEETH CLINIC

Uncovering the surprising secrets

The third special in the series (along with 'Allergy & Skin') explores common dental complaints at a special pop-up clinic – unveiling surprising secrets that could reduce the need to drill and fill. A team of top dental experts look at the emerging links between oral and general health, and reveal how cutting-edge technology is redefining the trip to the dentist (especially important for those who are fearful!).

From the city to the outback, *Teeth Clinic* delves inside mouths to see what's really behind a beautiful smile. In the city clinic, we meet a leader in dental innovation, whose research could produce a vaccine for severe gum disease. And in the outback, the clinic goes to the community, providing services to patients who'd otherwise face travelling prohibitive distances.

This unique surgery offers members of a drought-stricken community alternatives to what could have cost them valuable time, money – or teeth.

HD 1 x 60'



ASTEROID CHASERS

How asteroids have played a part in kickstarting life on earth

Astrophysicist Professor Tamara Davis explores one of the greatest scientific mysteries of all – how life began. While most asteroids never hit the earth, burning up in the atmosphere, the meteorites they do leave are precious finds. One meteorite found in Australia – the Murchison meteorite – completely changed our understanding of asteroids. Along with minerals and elements, it contained complex organic compounds, including amino acids – the building blocks of life. The discovery led to an extraordinary experiment in New Zealand. Among the primordial landscape of Rotorua's volcanic pools, astro-biologists Luke Stellar and Anna Wang use compounds found in the Murchison meteorite to try and cook up what they think are chemical blueprints for living cells known as 'protocels'. If successful, they may confirm something long suspected – that life may have come from space.

HD 1 x 60'



BUILDING GREENER CITIES

Developing greener, more sustainable and efficient places to live

Cities are one of our greatest inventions, they bring us together and drive wealth – but as more of us flock to live and work in them, we need to find ways to make them greener, more sustainable and efficient places to live.

Physicist Dr Niraj Lal explores some of the engineering solutions driving change. To see how we'll keep our growing population moving he visits the construction site of the largest public transport system ever undertaken nationally and discovers how engineers are finding ways to replace concrete – one of the biggest CO₂ emitters in the world – with greener alternatives.

Building greener cities is about making them resilient, productive and sustainable now, and for future generations. New materials are offering greener alternatives, but sometimes, you have to go back to the beginning. Timber. Daramu House is one of a handful of multi-story engineered timber office blocks in the country – the entire office block from the first floor up is made of engineered timber – no concrete or steel in sight. The engineered timber is made from sustainable softwood plantations – a renewable material that offers a carbon responsive opportunity to developers.

But it's not just the macro engineering that is helping us to build greener cities, but also micro innovations. With our skylines dominated by tall buildings, the resources required to maintain them – including keeping the windows clean – comes at a very high cost. Self-cleaning glass was hoped to be the answer, although to date the durability of the material has been a problem. But now a new invention might have the answer.

CATALYST SEASON 2 |



Meet the scientists turning deadly venoms into lifesaving drugs

Australia is home to some of the most venomous animals in the world – some so lethal they can kill a human in minutes. Alongside sharks and crocodiles, it also has a collection of over a hundred venomous creatures – including four of the top ten most deadly animals on the planet. But hidden inside venoms could be the medicines of the future – scientists believe they hold the key to a whole new pharmacy of drugs, with life-saving results.

Venom is made up of complex molecules that have evolved over millennia to target specific prey – some zero in on the nervous system, others attack the tissue or circulatory system. Because of this, venom could offer wide-reaching medical applications – from protecting the heart and brain, to potentially curing multiple sclerosis and epilepsy. Nature journalist Dr Ann Jones meets the scientists who are leading the world in this revolutionary modern medicine, and embarks a dangerous journey to come face-to-face with Funnel Web spiders, Taipan snakes and Irukandji jellyfish.

Available in neutral Spanish and French



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