

# NOVA scienceNOW

**NOVA scienceNOW TACKLES THE BIG QUESTIONS  
IN SIX THEMED THOUGHT-PROVOKING SPECIAL PREMIERES  
ON WHO WE ARE, WHERE WE CAME FROM  
& WHERE THINGS ARE GOING**

***Neil deGrasse Tyson Hosts a New Season of NOVA scienceNOW  
Beginning January 19, 2011 @ 8pm ET/PT on PBS***

**Series Aairs in a New Weekly Time Slot on Wednesday Nights Before NOVA**

***[pbs.org/nova/sciencenow](http://pbs.org/nova/sciencenow)***



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BOSTON, MA [November 2010]-- *NOVA scienceNOW* is changing its format with a new season that tackles some of the biggest questions on people's minds in six specially themed new episodes. Hosted by engaging astrophysicist Neil deGrasse Tyson, the series will present a variety of sequences each week around a particular, thought-provoking topic--pondering who we are, how we got here, and where things are going. As always, each show delves into the latest scientific breakthroughs that could contribute to a better understanding of ourselves and our place within the universe.

The six big questions this season include: "Can We Make It to Mars?"; "Can We Live Forever?"; "How Does the Brain Work?"; "How Smart Are Animals?" (which will be part of a larger NOVA programming event on PBS that night); "Where Did We Come From?"; and "What's the Next Big Thing?"

*NOVA scienceNOW* will premiere for six consecutive weeks on Wednesday nights, airing from January 19 through February 23, 2011 at 8 pm ET/PT (check local listings). The premiere will coincide with the move of the flagship NOVA series to a new night and time -- a scheduling change that will create a tantalizing two-hour slate of prime-time science and technology programming on PBS for viewers to connect with the incredible discoveries and inspiring characters that are transforming the way we live.

## **CAN WE MAKE IT TO MARS?**

**Premieres Wed, January 19 @ 8pm ET/PT**

Can humans survive a trip to Mars and back that could take two to three years? *NOVA scienceNOW* examines all of the perils and dilemmas of this journey--as well as the ingenuity being used to design innovative new materials for such an undertaking. The challenges faced by the space food lab at Johnson Space Center to serve fresh and healthy dishes that will last the long journey could inspire a "top chef" outer space competition, Neil deGrasse Tyson learns. Can he identify

more

an eight-year-old pork chop in a taste test? Add to that the threat posed by deadly meteoroids, bone and muscle deterioration, and perilous levels of radiation. These are the dangers that await spacefarers on a long space trip, as veteran astronauts attest. Scientists are developing new ways to keep astronauts alive, using novel meteoroid-proof materials, artificial gravity, exercise, and new modes of transport, such as plasma rockets. But will this be enough? Astronaut Mike Massimino checks in with MIT on designing a less cumbersome space suit for future Mars explorers—a form-fitting flexible suit that is more Captain Kirk than Neil Armstrong but still protects cells from the vacuum of space. *NOVA scienceNOW* also profiles young female scientist and daredevil Vandī Verma, part of the team that drives the Mars rovers, *Spirit* and *Opportunity*, who talks about the thrills and trials of driving on another planet.

### **CAN WE LIVE FOREVER?**

**Premieres Wed, January 26 @ 8pm ET/PT**

This provocative episode explores themes of life span and whether we can slow down the aging process, looks at the latest on human hibernation, and checks in with those inventing ways to keep us “going forever.” First, the recipe for longevity applied to keep a 1966 Volvo running for four decades and over 2.7 million miles may show how the human body can go the extra mile. Host Neil deGrasseTyson also hits the road to check in on scientists now learning how to grow custom-made vital organs—generating living hearts and lungs to replace the old ones as they start falling apart—and who imagine a day when any faulty body part will be easily replaced with an off-the-shelf transplant, in a kind of “body shop for body parts.” *NOVA scienceNOW* also examines what active 90-somethings and long-living worms have in common – and how their genetic link could potentially aid new theories about aging and the development of life-extending therapies and drugs. Then, dynamic young computer scientist Jason Leigh shows viewers his pioneering avatar technology, which could allow you to create a life like, digital, virtual version of yourself that would impart wisdom, humor, and unique insight long after you’re gone. *NOVA scienceNOW* also checks in with scientists studying miraculous recoveries from the cold to see if intentional human hibernation and drugs inspired by hibernating animals can provide life-saving therapy one day.

### **HOW DOES THE BRAIN WORK?**

**Premieres Wed, February 2 @ 8pm ET/PT**

*NOVA scienceNOW* delves into some pretty heady stuff to examine magic and the brain, artificial intelligence, mind control, and the nature of reality in an astonishing episode on how the brain works. First, can we really believe our own eyes? Viewers will learn whether the secrets behind the world’s greatest magic tricks are actually wired into the human brain when eccentric magicians Penn and Teller and Las Vegas trickster Apollo Robbins team up with neuroscientists to reveal how our brains process visual information. Then, a riveting piece reveals the difficulties of replicating the human brain in machines like IBM’s “Watson,” attempting to mimic the human thought process with software is actually providing new insight into the brain itself. Also, satirist and comedian Mo Rocca takes a turn as a *NOVA scienceNOW* correspondent in an intriguing sequence on the thrilling, terrifying prospect of controlling another’s thoughts and actions using invisible forces of mind control. Rocca offers himself as test subject as scientists “hack” into his brain, using magnetism to make him move his limbs. The same new invention can also dampen pain, ease depression, and even change the way we make moral judgments. Then, experience neuroscientist David Eagleman’s unique brand of “guerilla science,” when he drops people 150 feet into a net to show viewers how the brain constructs reality using the information it takes in through the senses.

## **HOW SMART ARE ANIMALS?**

**Premieres Wed, February 9 @ 8pm ET/PT**

Would you care to match wits with a dog, an octopus, a dolphin, or a parrot? You may want to think twice after watching this intriguing new *NOVA scienceNOW*. While we may not be ready for barnyard Barnards or sending pets to Harvard, the remarkable footage and findings presented here by cutting edge researchers demonstrate how many animals are much smarter than we think and in ways we had never imagined. Meet an American “superdog” with a “vocabulary” of more than 1,000 words, and witness as Neil deGrasse Tyson challenges the dog’s genius with a new and unexpected deductive reasoning test. Then, find out why “man’s best friend” is smarter than we ever thought and why dogs are the new darlings of research labs—much more cooperative than chimps and bonobos. Seemingly humble mollusks are also given their due here, not only for performing fantastic feats of camouflage in some wonderfully weird underwater sequences, but for boasting surprisingly large brains and problem-solving capabilities—like those demonstrated by one briny, brainy, eight-legged “Einstein” that easily figures out how to get tasty shrimp out of a twist-top jar. The fact that dolphins are smart is no secret to many, but viewers may be curious to see the extraordinary footage captured by *NOVA scienceNOW* of the creative, collaborative, and communicative behavior that is surprising even the scientists in Honduras who are studying them—including interpretation of written symbols. The episode also spotlights the groundbreaking work over 30 years of researcher Irene Pepperberg, who revolutionized scientists’ notions of animal communications and shares her amazing body of research and the moving story of the untimely demise of her beloved talking parrot, Alex.

***NOTE: “How Smart Are Animals?” will be one of three special program premieres airing as part of “the smartest night on television,” a larger themed block on PBS in which viewers can tune in for three consecutive hours from 8pm to 11pm ET/PT to watch NOVA scienceNOW, followed by “Making Stuff: Smarter” and NOVA’s “The Smartest Machine on Earth: Can a Computer Win on Jeopardy?”***

## **WHERE DID WE COME FROM?**

**Premieres Wed, February 16 @ 8pm ET/PT**

Where did the very first living thing on Earth come from? A landmark discovery by a chemist has yielded a new kind of “recipe” for natural processes to assemble and create the building blocks of life—something that could bring us much closer to understanding how the earliest life forms emerged billions of years ago. For the less squeamish, *NOVA scienceNOW* also examines how head lice, a creepy critter that’s been sucking our blood for millions of years, is suddenly proving to be a treasure trove of clues about our evolution. And in yet another groundbreaking discovery, neuroscientist André Fenton proves whether a simple injection can erase a painful memory. But should humans harness the power to erase our past? Host Neil deGrasse Tyson also brings viewers on a journey back in time to the birth of our solar system to explore whether the key to our planet’s existence could be the epic explosive shockwave of an ancient supernova.

## **WHAT’S THE NEXT BIG THING?**

**Premieres Wed, February 23 @ 8pm ET/PT**

Thrilling innovations and new discoveries are being made all the time in science, and there are a few things on the horizon in the fields of medicine and technology and energy that are really poised to change the way we live—from friendly robots to smart grids and better earthquake detection. First, viewers will meet the engineers designing social robots with the smarts to

understand human feelings, learn from human teachers, carry on conversations, and even make jokes. Robots already build our cars and vacuum our floors. One day soon, they could also serve as teachers' helpers, companions for the elderly, and even babysitters. *NOVA scienceNOW* also asks if the car of the future will be able to drive itself. The team heads to the General Motors Tech Center, where engineers are testing tiny, two-wheeled, battery-powered cars called EN-Vs, which one day might drive themselves through city streets. Then, Nebraska native Jay Keasling, a leading pioneer in the cutting-edge field of synthetic biology, shares his work on developing "designer" microbes that generate biofuels and medicines, which could save millions of lives and dollars with low-cost malaria drugs and clean-burning fuels. *NOVA scienceNOW* also takes an intriguing look at the science used by geologists to forecast earthquakes, like the devastating quake in Haiti that claimed the lives of nearly a quarter million people in January 2010. Scientists had forecast that tragedy with amazing accuracy two years earlier. *NOVA scienceNOW* shares exclusive coverage obtained while accompanying geologists as they first entered Haiti and then travels to where scientists are digging deep underground and uncovering weaknesses that could soon cause massive destruction in California.

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