


The Universe, on Earth


We may never solve all the mysteries of the Universe, but while we're working hard to understand one thing, we might discover something else entirely. For example, technologies invented to stare at stars and send astronauts to the moon are now vital to everyday life.

Your mission


Hidden in the pages of this book are examples of technologies born from or boosted by space research. Can you find:




Around 40 years ago, astronomers were studying evaporating black holes using a technique that was later adapted by CSIRO to invent WiFi, the wireless internet technology that now connects more than three billion devices around the world.




Are you always taking selfies? Maybe you love cat videos? The tiny digital camera in your smart phone uses concepts first dreamt up by aeronautical engineers.




Whether you're an Antarctic explorer or lost in a city, GPS can be your BFF. GPS stands for Global Positioning System, and it uses a network of satellites to calculate your position on the Earth's surface. Did you know: Exactly as predicted by Einstein's Theory of Relativity, the clocks on GPS satellites appear to gain 38 microseconds every day. This difference would cause an error of more than 10km each day if engineers didn't account for it in their GPS calculations.




Want to track tigers through the jungle without leaving your desk? Or survey your entire farm at the touch of a button? Thanks to information sent via space-age satellites, you can also detect forest fires, measure pollution, search for gold or discover sunken ships using modern monitoring technologies.




Petroleum Remediation Product, otherwise known as beeswax balls, uses hollow beeswax spheres to suck up spilled oil from polluted oceans. The spheres were first developed by NASA biologists as part of experiments on the International Space Station.



Satellite-enhanced weather forecasting saves lives by providing information about droughts, floods, and hurricanes. Also, improved forecasting means you can party at a picnic without getting soggy.



Next time you relax on your oh-so-comfy couch, imagine you're re-entering the Earth's atmosphere. The memory foam used in couches and pillows had its start in test pilot seats.



Many baby foods are enriched with nutrients produced by algae. Space engineers discovered the vital nutrients while trying to use algae photosynthesis to produce oxygen in space.



NASA didn't invent the cordless drill, but Black & Decker engineers specifically designed a portable drill for Apollo 15 astronauts to use on the moon. This technology paved the way for Dustbusters and cordless medical devices.

Did you know: To simulate the moon's low gravity, B&D tested their drill in nose-diving planes.

Shock-absorbing sports shoes and safety helmets use foams and rubber moulding technology first developed for space suits.

Did you know: Technology developed to create super-comfy ergonomic seats for take-off and re-entry is now being used in wheelchairs.

Today's sunnies and specs come complete with glare-filtering dyes and a diamond-like, scratch-resistant coating. The coating was developed to protect astronauts' visors, because there's nothing worse than scratching your glasses while you're space-walking.

No one likes being sick, especially in micro-gravity, so keeping astronauts healthy is a huge priority. To ensure Apollo astronauts were drinking clean water, scientists developed ways to filter and purify H₂O using activated carbon and silver ions. This same technology is now used for cleaning contaminated water and in household water filters.

Biologists on board the Space Shuttle noticed that exposure to light-emitting diodes (LEDs) boosted the growth of plant cells. This observation led to the development of medical LED devices for relieving pain and promoting blood circulation.

Tired of noisy petrol engines? Try an electric car, powered with next-generation lithium-ion batteries, developed from battery technology used on moon buggies and Mars rovers.

Flick a switch and you can watch satellite TV from around the world, thanks to technology originally developed to unscramble spacecraft communications.

The computers you now carry in your pocket were once the size of houses, which isn't helpful if you're flying to the moon. We have portable computing thanks to Apollo mission engineers, who found new ways to cram more power into smaller packages.

Suck the water out of ice cream and what have you got? A light, tasty and freeze-dried snack, powered by NASA research.

Infrared technology developed to measure the temperature of stars and planets is now applied in infrared thermometers, which can painlessly measure body temperature in under two seconds, via your eardrum.

Not keen on scalpels and surgery? Try lasers instead. The medical lasers doctors use to clear blocked arteries were first used to monitor the Earth's atmosphere.