**IMAGES: CURRENT AFFAIRS – SCIENCE & TECHNOLOGY**

*Supplementary Study Material*

- This document contains last one-year’s science and tech graphics and associated text from various newspapers such as The HINDU, The Indian Express, Economic Times, Times of India etc. UPSC has been asking questions on topics, which appear in these graphics.
- Though our science and tech notes cover almost all of these topics but we think this document will help you revise quickly as well as the image associated with text will enhance the chances of retention and reproduction in exam.
- **Symbols used:**
  - * marks indicate probable question apart from heading and subheading
  - † indicates not very important topic
  - ^ indicates recently asked topic

**SPACE**

**Launch of Mars Science Lab**

NASA’s most ambitious and expensive Mars mission yet enters a crucial stage Sunday with a touchdown on the red planet so risky it's been described as "seven minutes of terror"* -- the time it takes to go from 21,000km/h to a complete stop. By the time Earthlings receive first word of its fate, it will have planted six wheels on the ground, or tumbled itself into a metal graveyard.

**Launch of Mars Science Lab**

NASA’s Mars Science Laboratory, dubbed Curiosity*, is being sent on a two-year mission to the red planet, where it will look for signs of past or present microbial life in the 150km-wide Gale Crater.
NuSTAR space telescope

NASA’s Nuclear Spectroscopic Telescope Array (NuSTAR) mission aims to deploy the first focusing telescope that uses high energy X-rays to look for black holes. If successful it will supply images that are up to 100-times clearer than those taken by previous craft – comparable to that of the human eye.

Orbit tower

The Olympic Games take place in London.
Transit of Venus

Astronomers are preparing to view a rare planetary alignment when Venus passes across the disk of the sun, as seen from Earth. Transits of Venus occur in pairs with more than a century between each pair, and has been witnessed only seven times since the invention of the telescope in 1610.

Sun-powered intercontinental flight

Prototype aircraft Solar Impulse has taken to the skies in its first intercontinental flight, travelling from Switzerland to Morocco, powered solely by the sun. If successful, a round-the-world flight is planned for 2014.
World’s biggest radio telescope

The Square Kilometre Array - one of the great scientific projects of the 21st Century - will be built and based in both Australia and South Africa, the international consortium overseeing the project has announced. SKA will be 50 times more sensitive and 10,000 times faster than any other telescope on the planet.

First commercial launch to ISS

SpaceX is set to launch an unmanned version of the Dragon capsule^ to the International Space Station. The Dragon mission would be the first time a privately owned and operated vessel visits the space station.
Apollo 11 engines found

Billionaire Jeff Bezos plans to retrieve one of the five Apollo 11 moon mission engines that plunged into the Atlantic more than 40 years ago. The F-1s, the most powerful single-chamber engines ever built, lie 4,267m deep. The first-stage engines that rocketed the crew toward the moon on July 16, 1969, burned for just 165 seconds before plunging into the ocean as planned. Four days later, Neil Armstrong took man's first steps on the moon.

Kepler mission to ISS

Europe's Automated Transfer Vehicle blasted off from Kourou in French Guiana. Heading to the International Space Station with supplies of food, water, air, and fuel, the ATV is the biggest supply ship now the U.S. shuttles have been retired. Named after German astronomer Johannes Kepler, the ATV can also move the ISS out of the way of potentially dangerous space debris, and take away waste.
DEFENSE

Agni-V missile test

India is planning to test launch a new nuclear missile that for the first time would give it the capability of hitting the major Chinese cities of Beijing and Shanghai. The Agni-V missile has a range of 5,000 kilometres (3,100 miles). The new Agni, meaning fire in Hindi, is expected to enter service by 2014-15.

K-Max helicopter

An unmanned helicopter designed to lift supplies and equipment to U.S. troops is being deployed in Afghanistan. The Kaman K-MAX can be flown into under-fire areas without risk to aircrew, reducing the need for truck convoys that are often targeted by insurgents.
Russian space probe to hit Earth

Russia’s failed Phobos-Grunt Mars probe is expected to re-enter Earth’s atmosphere and burn up on January 15. Scientists predict that about 20 to 30 fragments with a total weight of less than 200kg might survive the fiery descent, but exactly where they will fall is still unknown.

NASA Grail probes enter lunar orbit

NASA’s twin unmanned Gravity Recovery and Interior Laboratory (GRAIL) probes have begun a 90-day mission gathering data to create the first complete high-resolution map of the Moon’s uneven gravitational field.
Flame computer virus iGraphic

One of the most sophisticated pieces of malicious software yet discovered – codenamed Flame – has about 20 times as much code as the Stuxnet worm that attacked Iran’s nuclear program in 2010, and may have infected as many as 5,000 computers worldwide.

Drug testing HTML5 iGraphic

More than 10,000 athletes will compete in the 2012 Summer Games, and nearly half of them - including every medal winner -- will be tested for 240 banned substances under the most aggressive anti-doping campaign in Olympics history. Pharmaceutical giant GlaxoSmithKline and scientists from King’s College London, will work 24/7 processing as many as 400 samples daily.

China sends first woman astronaut into space

China will send its first woman into space with two other astronauts to work on a temporary space station for about a week, in a key step toward becoming the third nation to set up a permanent base in orbit. Liu Yang, a 34-year-old air force pilot, and two male colleagues will blast off at 12:37 GMT aboard a Shenzhou 9 spacecraft, which will dock with the Tiangong 1 space lab orbiting 343 kilometers above the Earth.
Drug Testing

One in two athletes and all medal winners will give urine samples to be tested for 240 prohibited substances. More than 5,000 urine and 1,000 blood samples will be analysed over the 16 days of the London Olympics. The 24-hour Olympic testing laboratory is being run by GlaxoSmithKline and the Drug Control Centre at King’s College, London.

Three-parent fertility treatment

"Three-parent" fertility treatments designed to prevent some incurable inherited diseases, inherited from the mother through faulty mitochondrial DNA, are ethical and should go ahead Britain’s Nuffield Council on Bioethics said on Tuesday.

Huge iceberg breaks off Greenland glacier

An iceberg twice the size of Manhattan has broken away from Greenland’s Petermann Glacier, posing a fresh danger to North Atlantic shipping lanes and oil rigs off Canada’s east coast. It is the second massive iceberg to calve from the glacier in less than two years.
Fukushima health effects

U.S. researchers have released a study indicating that the global health effects of radioactive fallout from Japan's Fukushima nuclear accident may be deadlier than predicted. Previous reports claimed that the release of radiation would likely cause no severe health effects.

New particle could be Higgs boson

The European Organisation for Nuclear Research (CERN) has announced the discovery of a new particle that could be the elusive Higgs boson. The Higgs -- a force carrier thought to give matter its mass -- is the only particle in the Standard Model theory of matter that scientists had not detected.
Goal line technology decision

After much debate, FIFA appears set to introduce goal-line technology, choosing between two rival systems that meet its standards on accuracy, speed of decision-making – the one-second rule – and 100% reliability.

Ecology

World’s largest marine park

Australia has announced that it will create the largest network of marine parks in the world, covering 3.1 million sq km, more than a third of the nation’s waters. Commercial fishing and oil and gas exploration will be limited in the most sensitive areas.
**Race to ocean deep**

In the next few weeks, film director James Cameron plans to pilot a specially designed submarine down to the 11km-deep Mariana Trench in the Pacific Ocean, becoming the first of four high-profile contenders attempting to revisit the deepest point in the world’s oceans.

**Ice age human melting pot**

Research suggests that as modern humans migrated out of Africa, ice age conditions forced them to shelter in “refugia” occupied by smaller groups of distant cousins. Subsequent evolutionary change may have led to one global species of human – and the demise of its Neanderthal and Denisovan ancestors.
“It gives me great pleasure to inform you that I have secured AIR 10 in CSE 2011. Also since my score in Philosophy optional is 356 (173+183). Having joined the test series at your esteemed institute was indeed a great turning point in my preparation. Your valuable, to the point and in depth feedback was very important in making my approach holistic. Sir, your guidance through the postal test series was as good as any classroom coaching. I believe it played a very great role in doing so well in the first attempt.”

~Amrutesh Aurangabadkar (AIR 10, CSE 2011)