

“houston, we have a
problem”



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"Houston, we have a problem" Over many generations space has become a great curiosity for mankind. Many questions have risen such as "How many planets are in the solar system?" or "Is earth the center of the solar system?" Obviously, now with historic astronomers such as Galileo the 8 planets and the sun in the center, has become the central idea of what is the universe to mankind today. But why not reach out more? Today questions have risen "Will we ever get to Mars?" "Is there life on Mars?" Mars, Mars, Mars! ; This is goal of the National Aeronautics and Space administration today. NASA the wondrous space program of the world, forming in the brink of the terrible "Cold War", NASA fought with the Soviets with the creation of the Apollo program, Neil Armstrong putting our American colors on the grey moon; America had outlasted the Soviets in so called "Space Race". But why? Because of the great curiosity that mankind had in the Universe. Curiosity is a powerful force that drove NASA past the Space Race and never let it stop. After Apollo program ended budget cuts followed; but succeeded with the Skylab project and the Viking Mars Landers but most of all the majestic Hubble Space Telescope. The Hubble Space Telescope lets us watch the expansion of the universe in a way never before imagined. Not only does it have 10 times the resolution of a ground-based telescope and 50 times the sensitivity, but another development around the same time made its unprecedented views of the universe more accessible than any previous scientific advance. All these achievements NASA as accomplished, why aren't they going further? The tragedies such as the explosion of Colombia and the tremendous budget has overshadowed the curiosity that mankind has. "NASA should be shut down", people have said. Others have said "Is it really necessary". These people don't realize the importance of NASA as

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their minds are clouded with the current economy and how much this program is spending. This needs to change. Although some people may find the National Aeronautics and Space Administration program a waste of time and money; they soon need to realize that the United States in fact has come so far with this successful program and needs to continue funding it. NASA, like every other successful program in the world, does have its downsides. But are people really over thinking them? The major disadvantage to manufacturing in space is cost. Currently all space bound vehicles are government owned. Fee structures for sending materials into space are exorbitant and delivery service is both uncertain and infrequent. It costs approximately \$20, 000. 00 per pound to send materials into space currently. But cutting NASA out of the federal budget would only cut less than one percent of the total. Compare this to the 5% of the federal budget spent on NASA at the height of the Apollo missions to the moon and it is clear that its current programs are affordable. Nor would scrapping NASA and spending its budget on social programs make any great difference — the federal government alone spends nearly a hundred times more on social programs than it does on NASA. So the impact on the poor from redirecting our space exploration budget would be insignificant. By comparison, defense and homeland security spending is more than forty times NASA's budget each year, so if the nation is to change its priorities that is clearly a better place to start. NASA's funding and management are not perfect, but that is a reason to reform them, not to abolish the agency altogether. Part of the reason the agency's work is expensive is that it is both cutting-edge and concerned to minimize risk. Other countries' space agencies and private companies may look more cost-effective, but that is because they are less

ambitious, being largely content to replicate what NASA already achieved decades ago. This space program has done several things which so many people use! Isn't it strange? A space program? Although most people today will never set foot on the moon, it's likely you come into contact with a NASA byproduct every day. Partnering with various research teams and companies, NASA continues to spawn a vast array of new technologies that have improved our daily lives. In fact, NASA has filed more than 6,300 patents with the U. S. government. This is true as the areas in which NASA-developed technologies benefit society can broadly be defined as: health and medicine, transportation, public safety, consumer goods, environmental and agricultural resources, computer technology and industrial productivity. In its time, NASA has developed many new technologies that are important for day-to-day life, including CAT scanners. The first pacemakers were developed based on NASA technology. They are funded significantly less than the as much as 4% of the national budget they used to get, but they continue to develop new technologies that are important, one such example is hydroponics. Hydroponics allows crops to be grown without soil and wheat grown with this method has produced five times the grain as typical field grown wheat. This technology is important because the earth is beginning to become overcrowded and the ability to grow more food in less space will let the Earth support a bigger population. Now wipe all of these great products out and imagine life without them. Hard to do isn't it. But there is more!

NASA is not just a space program. Although its title says the National Aeronautic and Space Administration, it does so much more. NASA has found that a microorganism in Mono Lake California can live by using toxic chemical called arsenic. This organism replace phosphorous, which is one of

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the six essential elements for all life on earth. All life on earth cannot tolerate Arsenic as it is very poisonous, until researchers found this microorganism. “ Arsenic disrupts metabolic pathways because chemically it behaves similarly to phosphate. “ The newly discovered microbe, strain GFAJ-1, is a member of a common group of bacteria, the Gammaproteobacteria. In the laboratory, the researchers successfully grew microbes from the lake on a diet that was very lean on phosphorus, but included generous helpings of arsenic. When researchers removed the phosphorus and replaced it with arsenic the microbes continued to grow. Subsequent analyses indicated that the arsenic was being used to produce the building blocks of new GFAJ-1 cells. " NASA found that this arsenic was involved in making DNA and other components of the cell. This is very interesting as Mono lake was very unusual for a lake because of its high levels of arsenic and also high salinity and high alkalinity. The results of this study will inform ongoing research in many areas, including the study of Earth's evolution, organic chemistry, biogeochemical cycles, disease mitigation and Earth system research. These findings also will open up new frontiers in microbiology and other areas of research. Understand that this program is fantastic for all fields. Not just medicine, but engineering, environmental activists, etc. Sometimes a little extra money in the long run could be very beneficial as already this program is making incredible discoveries. The current situation for NASA is not all that pleasant. Two ambitious missions that NASA had hoped to launch to Mars, in 2016 and 2018, will be canceled. The first would have sent an orbiter to measure gases in the Martian atmosphere - methane in particular, since methane does not last long. Its presence could suggest that Martian microbes are busy at work emitting the gas. The second, in 2018, would have set the

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stage to fulfill the longstanding desire of scientists to bring pieces of Mars back to Earth for close-up study with the full arsenal of instruments available in their laboratories. Now the prospect of bringing Martian rocks to Earth is likely pushed to the mid- or late 2020s, all because of budget cuts. President Obama's budget request for 2013 calls for cutting NASA's robotic exploration of the solar system by 20 percent, to \$1.2 billion, and the Mars program would be particularly hard hit. Already, NASA has withdrawn from collaboration with the European Space Agency that would have launched the missions in 2016 and 2018, angering the Europeans and disappointing astrobiologists and planetary scientists. The sidelining of the Mars program is one of several depressing developments at NASA. The space shuttles will never fly again, and the agency's reliance on Russian rockets to ferry astronauts to the space station is likely to be extended, because financing of commercial companies to take over that task has been limited. The James Webb Space Telescope, meant as the successor to the Hubble Space Telescope, is delayed and over budget, now at least six years from being ready. The new heavy-lift rocket that is to take astronauts on faraway missions will not carry any astronauts until 2021. All of the big projects are slipping into the distant future. We need NASA, we need to dream. Scientists did the dreaming in the 50s and 60s, and it got us to the Moon. It reminds me of Christopher Columbus, when he was sent toward the unknown, to later "discover" America. When he came back, did the King and Queen say that we weren't going to go to the newly discovered world? Or did they say let's travel there and explore, and later send people there, and settle, and continue to dream big. Guess what they chose? If they would've picked the individual's ideals, that is, forget NASA and forget dreaming, then we'd all be

living in England and Spain right now. There would be no United States, and funny, there wouldn't be a NASA for the individual to assert we don't need them to begin with. Studying space and traveling through it alters mind-stakes, whether or not you love science or space or astronomy or anything, it will alter your mind-stake. Although some people may have different opinions, they need to realize that it can be fixed. Don't abolish this great program because we need NASA, we need to dream, and we need to explore and discover the unknown.