

### TEXT 3 2016 Exam Paper – JOURNEY INTO SPACE

*This edited text is adapted from a speech delivered by President Barack Obama at the National Aeronautics and Space Administration (NASA), Kennedy Space Centre in Florida. In this extract he acknowledges the history, and outlines the future, of American space exploration.*

Little more than half a century ago in a remote and desolate region of what is now called Kazakhstan the Soviet Union launched Sputnik, the first artificial satellite to orbit the Earth. The Soviets, it was perceived, had taken the lead in a race for which we were not yet fully prepared. But we caught up very quickly. In the years that have followed, the space race inspired a generation of scientists and innovators. It has contributed to immeasurable technological advances that have improved our health and wellbeing, from satellite navigation to water purification, from aerospace manufacturing to medical imaging. On a personal note, I have been part of that generation so inspired by the space programme. One of my earliest memories is sitting on my grandfather's shoulders, waving a flag as astronauts arrived in Hawaii.

So today, I'd like to talk about the next chapter in this story. The challenges facing our space programme are different, and our imperatives for this programme are different, than in decades past. We're no longer racing against an adversary. We're no longer competing to achieve a singular goal like reaching the Moon. In fact, what was once a global competition has long since become a global collaboration. I am one hundred percent committed to the mission of NASA and its future. Because broadening our capabilities in space will continue to serve our society in ways that we can scarcely imagine. Because exploration will once more inspire wonder in a new generation – sparking passions and launching careers. And because, ultimately, if we fail to press forward in the pursuit of discovery, we are ceding our future and we are ceding that essential element of the American character.

We will start by increasing NASA's budget by \$6 billion over the next five years. We will ramp up robotic exploration of the solar system, including a probe of the Sun's atmosphere; new scouting missions to Mars and other destinations and an advanced telescope to follow Hubble, allowing us to peer deeper into the universe than ever before.

We will increase Earth-based observation to improve our understanding of our climate and our world – science that will garner tangible benefits, helping us to protect our environment for future generations. And we will extend the life of the International Space Station, while actually using it for its intended purpose: conducting advanced research that can help improve the daily lives of people here on Earth, as well as testing and improving upon our capabilities in space.

After decades of neglect, we will increase investment – right away – in other groundbreaking technologies that will allow astronauts to reach space sooner and more often, to travel farther and faster for less cost, and to live and work in space for longer periods more safely. That means tackling major scientific and technological challenges. How do we shield astronauts from radiation on longer missions? How do we harness resources on distant worlds? How do we supply spacecraft with energy needed for

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these far-reaching journeys? These are questions that we can answer and will answer. And these are the questions whose answers no doubt will reap untold benefits right here on Earth. We're not looking just to continue on the same path – we want to leap into the future; we want major breakthroughs; a transformative agenda for NASA.

Through our plan, we'll be sending many more astronauts to space over the next decade. By 2025, we expect new spacecraft designed for long journeys to allow us to begin the first ever crewed missions beyond the Moon into deep space. We'll start by sending astronauts to an asteroid for the first time in history. By the mid-2030s, I believe we can send humans to orbit

Mars and return them safely to Earth. And a landing on Mars will follow. And I expect to be around to see it.

Now, I understand that some believe that we should attempt a return to the surface of the Moon first, as previously planned. But I just have to say pretty bluntly here: we've been there before. There's a lot more of space to explore, and a lot more to learn when we do. I believe it's more important to ramp up our capabilities to reach a series of increasingly demanding targets and that's what this strategy does.

So this is the next chapter that we can write together here at NASA. We will partner with industry. We will invest in cutting-edge research and technology. We will set far-reaching milestones and provide the resources to reach those milestones. I know that some Americans have asked the question: why spend money on NASA at all? Why spend money solving problems in space when we don't lack for problems to solve here on the ground? And obviously our country is still reeling from the worst economic turmoil we've known in generations. But you and I know this is a false choice. We have to fix our economy. But the space programme has fuelled jobs and entire industries. The space programme has improved our lives, advanced our society, strengthened our economy, and inspired generations of Americans. I have no doubt that NASA can continue to fulfil this role. This is exactly why it's so essential that we pursue a new course and that we revitalize NASA and its mission – not just with dollars, but with clear aims and a larger purpose.

Now, little more than forty years ago, astronauts descended the nine-rung ladder of the lunar module and allowed their feet to touch the dusty surface of Earth's only Moon. This was the culmination of a daring and perilous gambit – of an endeavour that pushed the boundaries of our knowledge, of our technological prowess, of our very capacity as human beings to solve problems. It wasn't just the greatest achievement in NASA's history – it was one of the greatest achievements in human history.

The question for us now is whether that was the beginning of something or the end of something. I choose to believe it was only the beginning. This text has been adapted, for the purpose of assessment, without the copyright holder's prior consent

2016 Question: Imagine that you are an American citizen and you have just listened to President Obama's speech above. You are opposed to the amount of public money committed by the President for space exploration and decide to mount an online campaign against this expenditure. Write a post for your blog in which you give your

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reasons for opposing the spending of so much public money in this way, and propose how you think these public funds could be better spent.

### 2016 Sample Answer:

#### Answer

**B** Imagine that you are an American citizen and you have just listened to President Obama's speech above. You are opposed to the amount of public money committed by the President for space exploration and decide to mount an online campaign against this expenditure. Write a post for your blog in which you give your reasons for opposing the spending of so much public money in this way, and propose how you think these public funds could be better spent.

Mr President Are you Kidding Me? (Blog Header)

*My response to President Obama's pledge to increase NASA's budget by \$6 billion over the next 5 years.*

The president's latest pledge to spend an extra \$6 billion dollars on space is nothing more than an exercise in indulgence and egotism. One of the reasons for this is his childhood memories of *'waving a flag as astronauts arrived in Hawaii'*. Has it come to this Obama? Do you base crucial fiscal policy on a sentimental memory with your grandfather?

Do you not think other equally special memories could be created? With an extra \$6 billion dollars, we could have memories of a fairer, more equitable world.

To spend \$1 on anything that doesn't improve the lives of those living on Earth is wrong. Mr President, are you aware of how many of our children in our own country are going to bed hungry at night? Or are you aware of how many children die of starvation every day in other parts of the world?

You say that the space program has provided employment for many and has *'inspired a generation of scientists and innovators'*. This may be true of middle to upper class kids who would already have had that interest and opportunity. Now, I want you to consider how many more future scientists and innovators we could provide if we put \$6 billion into investing in our disadvantaged areas or fighting disease.

You state in your speech that the space race began because we were *'racing against an adversary'* but conditions have changed and we are *'no longer competing'*, so why keep spending these obscene amounts of money? And why give this money to NASA? It has been well documented that NASA has a very poor record with managing programs, particularly when it comes to cost. Surely, these investigations could be given to private industry who would manage them better? That would free up the money to benefit our own citizens. As long as any of our citizens are hungry or homeless, we cannot afford the luxury of such spending!

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President Obama, you say that you want to send '*more astronauts to space over the next decade*'. I want to send more people to school! You say you want to create more jobs in this area. I want more jobs for the average American citizen. Think about the number of people who are on welfare all their lives. We need to invest in programs to change their lives and, consequently, the lives of their children.

Mr President, why are you planning for '*new spacecraft*' for long journeys into space when there are huge problems transporting our kids to school? Perhaps, this is an indication of how far removed you have become from ordinary people. Remember the majority of our citizens have never even travelled outside our country!

You state that walking on the Moon was '*one of the greatest achievements in human history*'. Well, for once, we agree! I also agree with you that '*We have to fix our economy*'. I believe that that \$6 billion could contribute towards '*the*' greatest achievement in human history - the eradication of poverty. Please, Mr President, for the sake of our children and future generations, drop this exercise in vanity and rethink your spending!

*What are your views on this issue? Please comment in the box below.*