

History Case Study: The Moon Landing, 1969

Developing the ability to think critically by exploring
causation with students
Spring, 2019

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The Moon landing, 1969: developing the ability to think critically by exploring causation with students

In exploring the case study, *The Moon landing, 1969*, students are following a narrative of events. They are not concerned, however, merely with what happened but also with why it happened and what its historical significance is. In exploring issues of causation and significance with students, we have a great opportunity to develop their ability to think critically, which is one of the stated objectives of the syllabus and an increasingly cherished aim of senior cycle education.

At previous history in-service sessions, it has been argued that some of the best ways in which students' critical thinking can be generated include:

- the use of the enquiry-focused approach
- the use of 'critical skills' exercises that involve group discussion and judgement-forming

Both approaches are drawn on in the following exploration of the case study.

The enquiry-focused approach

The enquiry-focused approach involves organising a set of lessons around an enquiry question on which the teaching and learning activities are focused. It aims to give a clear focus to a series of lessons, to clarify for all concerned what the learning purposes are and to ensure that the sequence of lessons is leading to improved understanding on the part of the students.

In her book, *The Twentieth Century World* (The Historical Association, 1997), Christine Counsell outlines the rationale behind the approach. The following is an edited extract:

Choosing a sequence of interesting historical enquiries gives a clear focus to any scheme of work. This approach has a number of advantages:

- (i) It prevents a superficial run through the content and leads pupils into deeper levels of historical understanding.
 - (ii) It allows students to engage in real historical debate. Historians usually begin with a question.
 - (iii) It motivates students by giving a clear focus to their work. Identifying key questions is a powerful way of 'sharing clarity with learners'. Teachers are thus reinforcing that the whole point of a sequence of lessons or activities is to build towards some attempt at answering the question. Some teachers who use this approach will refer to such a question in every single lesson. Pupils are constantly reminded of what they are trying to do and why.
 - (iv) Key questions can shape and limit an otherwise sprawling content.
 - (v) It encourages pupils to produce more substantial and significant outcomes at the end of a section of work.
- (pp.30-31)

Linking your work on the case study to the National Literacy and Numeracy Strategy

The following quote comes from *Literacy and Numeracy for Learning and Life: The National Strategy to Improve Literacy and Numeracy among Children and Young People* (Department of Education and Skills, 2011, p.8)

Traditionally we have thought about **literacy** as the skills of reading and writing; but today our understanding of literacy encompasses much more than that. **Literacy includes the capacity to read, understand and critically appreciate various forms of communication including spoken language, printed text, broadcast media, and digital media.** Throughout this document, when we refer to “literacy” we mean this broader understanding of the skill, including speaking and listening, as well as communication using not only traditional writing and print but also digital media.

The student activities set down in this resource are designed to improve students’ “capacity to read, understand and critically appreciate various forms of communication including spoken language, printed text, broadcast media, and digital media.”

As the literacy strategy makes clear, a key element in developing literacy is promoting students’ listening, talking, reading and writing skills, as well as their ability to critically assess visual images and other broadcast material. Some of the ways in which material from this booklet can be used to achieve these objectives are as follows:

- The worksheet on the video clip encourages students to watch and listen carefully, and it includes questions designed to develop their ability to think critically.
- The questions/points for discussion that follow the sources are intended to form the basis for purposeful discussion among students and educative interaction between teacher and students. As well as promoting literacy, the teaching and learning conversation which this type of interaction underlies is a key component of all strategies for promoting assessment for learning in the classroom.
- The enquiry approach exemplified in this resource is designed to keep the learning outcomes constantly in the forefront of students’ minds. This is important in all strategies to improve literacy and is a key component of strategies for assessment for learning.
- The critical skills exercise is a type of card sorting exercise which helps to develop students listening skills and oral skills, as well as their ability to think critically.
- The importance of consolidating learning through carefully-designed written tasks is fundamental to student learning. The enquiry approach exemplified here concludes with an activity for students: “Your conclusions on the enquiry”. Also, some of the “Questions and points for discussion” set down for each step of the enquiry can be used as the basis for written tasks as deemed appropriate by the teacher.

The elements of *Literacy and Numeracy for Learning and Life* relating to numeracy identify the need to enable young people “to think and communicate quantitatively, to make sense of data, to have a spatial awareness, to understand patterns and sequences, and to recognise situations where mathematical reasoning can be applied to solve problems.” Teachers may wish to look out for opportunities to develop these abilities in students in the course of work on the case study. (e.g. questions in relation to duration such as Source 7, Questions 2 & 3.)

The Moon landing, 1969: a contextual overview of the case study

On the morning of 16 July 1969, three astronauts, Neil Armstrong, Buzz Aldrin and Michael Collins, were launched into space aboard the spaceship *Apollo 11* by the powerful rocket, *Saturn V*, from the Kennedy Space Center at Cape Canaveral in the state of Florida. On 20 July, Neil Armstrong and Buzz Aldrin descended to the lunar surface in the lunar module, *Eagle*, while Michael Collins orbited the Moon in the command module, *Columbia*. At 4.18 pm EDT (Eastern Daylight Time), Armstrong sent a radio message to the command centre in Houston, Texas: “Houston, Tranquility Base here. The Eagle has landed.” At 10.56 pm, Armstrong climbed down the ladder on the outside of the *Eagle* module and, with half a billion people worldwide watching on TV, announced as he stepped onto the surface of the Moon: “That’s one small step for a man, one giant leap for mankind”.

The reason why this landing happened, and the planning that preceded it, go back many years prior to 1969. In October 1957, the launch into space of the Soviet satellite, *Sputnik*, caused major concern in the United States and introduced a new element into the Cold War between the two superpowers which is generally referred to as the ‘space race’. On 12 April 1961, the Soviet cosmonaut, Yuri Gagarin, became the first man in space and pressure for the U.S. to make a decisive leap ahead in the space race increased. On 25 May, in a special address to a joint session of the U.S. Congress, President Kennedy expressed his belief that, “this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to the Earth.”

Just a few months later, in August 1961, the building of the Berlin Wall began, and the Cold War hostilities reached new levels of confrontation and distrust. In October 1962, the Cuban missile crisis brought the two superpowers close to the precipice of outright warfare. Meanwhile, the rivalry in space continued. The Soviet Union maintained its lead for much of the 1960s, achieving the first space walk in March 1965 and the first landing of a spacecraft on the Moon in January 1966. In the United States, the Apollo programme and the Gemini project worked resolutely to achieve the aim articulated by President Kennedy of putting a man on the Moon before the decade ended. *Apollo 8* achieved the first manned orbit of the Moon in December 1968, and by July of the following year the way was clear for *Apollo 11* to undertake its historic journey.

When Neil Armstrong stepped onto the Moon’s surface on 20 July 1969, he was watched by over five hundred million people worldwide. The psychological and emotional impact of a human being breaking the bounds of earth and setting foot on another terrestrial body in outer space (one that was visible to the naked eye and familiar to all) was enormous: Neil Armstrong’s achievement was seen as a cause for joy and celebration all over the world. In a narrower, political sense, this spectacular first in the space race reassured Americans that they could surpass the achievements of the Soviet Union and give as good as they got in the Cold War. After a decade which had seen a succession of tragic and traumatic events, from the assassination of President Kennedy, through the mounting casualties and stalemate of the war in Vietnam, to the assassinations of Martin Luther King and Robert Kennedy, the Moon landing offered a more hopeful vision of humankind’s abilities and possibilities.

Just three years later, however, the landing of *Apollo 17* astronauts on the Moon marked the end of the Apollo Program – and no one has been back there since. In retrospect, the landing may be seen as a highly significant marker in humankind’s on-going commitment to space exploration – and one that stimulated a wide range of developments in many branches of science and computer technology. For Neil Armstrong, it was a humbling and timely reminder of humankind’s place in the universe: asked once how it made him feel, his response was “very very small”.

Glossary of important terms: develop your historical literacy skills

Apollo program

This programme was established by the National Aeronautics and Space Administration (NASA) in 1961, following President Kennedy's statement of intent to put a man on the Moon by the end of the decade. Its purpose was to develop the technology, and choose and train the personnel to make a successful Moon landing. Eleven flights were successfully completed: the first four tested equipment being developed by the programme, while six of the other seven landed on the Moon. The first Moon landing was made in 1969 by *Apollo 11*; the last one was made in 1972 by *Apollo 17*.

Astronaut/cosmonaut

An astronaut is a person trained and qualified to work in outer space by NASA or one of a number of other agencies, including the European Space Agency (ESA). A cosmonaut is a person trained and qualified to work in outer space by the Russian Space Agency or, prior to the collapse of the Soviet Union, the space agency of the Soviet Union, Mir. Requirements for entry to the respective training programmes differ: for example, U.S. astronauts may not be older than forty years of age on commencement of training, while Russian cosmonauts must not be older than thirty years of age.

Gemini Program

The Gemini Program or Project Gemini ran from 1962 to 1966. Its role was to identify the challenges involved in undertaking space travel and to work out ways in which these challenges could be addressed. The discoveries and developments made by Gemini helped NASA to prepare for the Apollo Moon landings. NASA named the Gemini spacecraft and programme after the constellation Gemini: in Latin, the term refers to twins, and the Gemini capsule could carry two astronauts. In all, ten astronauts flew missions on the two-man *Gemini* spacecraft in 1965 and 1966. The *Gemini 4* mission in June 1965 included the first U.S. spacewalk.

Lunar module

The lunar module was that portion of an *Apollo* spacecraft that detached itself from the command module that was in orbit around the Moon, landed on the lunar surface and, subsequently, returned to the command module in a docking manoeuvre that required split-second timing accuracy. The module had a 'descent' stage which was left behind on the Moon and an 'ascent' stage which was used to rendezvous with the command module. Once this was achieved, the ascent stage was abandoned in space and all three astronauts returned to Earth in the command module. In the Moon landing of 1969, the lunar module was known as the *Eagle*.

National Aeronautics and Space Administration (NASA)

Responding to the launch of *Sputnik* in 1957, the U.S. Congress agreed that a new space agency was needed to lead the way in civilian space exploration. (The armed forces retained control of separate military space programmes.) President Eisenhower signed the National Aeronautics and Space Act on 29 June 1958, and NASA began operations on 1 October. Its first Administrator was T. Keith Glennan. Among the existing agencies that

were absorbed into the new organisation were its predecessor, the National Advisory Council for Aeronautics (NACA), and the Army Ballistic Missile Agency, where a team of engineers under Wehrner von Braun were developing large rockets. Von Braun went on to play an important role as director of NASA's Marshall Space Flight Center (in Huntsville, Alabama) and as the architect of the *Saturn V* launch vehicle that would make the Moon landing possible.

Orbit

In the context of outer space, an orbit is a regular, repeating path that one object in space follows as it moves around another. The object that is in orbit is referred to as a satellite. During the Moon landing of 1969, the command module *Columbia*, piloted by astronaut Michael Collins, was in orbit around the Moon.

Rendezvous

In the context of outer space, a rendezvous is a manoeuvre involving two spacecraft. It requires the two spacecraft to enter the same orbit and approach each other closely, matching each other's speed and making a docking manoeuvre possible. A docking manoeuvre is where the two spacecraft link up and function as one unit.

Space rocket

Space rockets are used to launch various types of spacecraft into space. Their powerful engines allow spacecraft to be blasted into space at speeds that would not otherwise be possible. One important feature of a rocket engine is that (unlike, for example, a jet engine) it does not require air and can work effectively in space, where there is no air. Space rockets have different parts, often referred to as stages, which are used (and may be then abandoned) at different points in the space rocket's mission. The rocket used for the 1969 Moon landing was *Saturn 5*. It was about the height of a 36-storey building.



https://commons.wikimedia.org/wiki/File:Apollo_11_liftoff_from_launch_tower_camera.jpg
Apollo 11 lifts off aboard the *Saturn 5* rocket, 16 July 1969

Biographical notes

Edwin ('Buzz') Aldrin (1930-)



[https://commons.wikimedia.org/wiki/File:Buzz_Aldrin_\(Apollo_11\).jpg](https://commons.wikimedia.org/wiki/File:Buzz_Aldrin_(Apollo_11).jpg)
Buzz Aldrin: photograph taken in May 1969

Born Edwin Aldrin, Jr., in New Jersey, he legally changed his name to Buzz Aldrin in 1988. ("Buzz" had been his nickname since childhood.) Aldrin was the second American astronaut to step foot on the Moon.

Aldrin graduated from the West Point Military Academy in 1951 and became an air force pilot. During the Korean War, he flew sixty-six combat missions and, subsequently, he served in West Germany. His dissertation on orbital mechanics earned him a Ph.D. from the Massachusetts Institute of Technology (MIT) in 1963; in the same year, he was chosen as an astronaut. His participation in the *Gemini 12* space flight of November 1966 was noteworthy for his walks in space, three in all, totalling five and a half hours.

In the *Apollo 11* mission of July 1969, Aldrin followed Neil Armstrong on to the lunar surface. After almost two hours of taking photographs, collecting rock samples and setting up scientific equipment for tests, the two men piloted the lunar module *Eagle* to a successful rendezvous with the command module *Columbia*, piloted by Michael Collins.

In 1972, Aldrin left NASA to become commandant of the Aerospace Research Pilot School at Edwards Air Force Base in California. However, in March 1972, Aldrin retired from the air force to become involved in private business. In 1998, he founded the ShareSpace Foundation, a non-profit organisation to promote the expansion of crewed space exploration. Amongst the many books written, or co-written, by Aldrin are two autobiographies, *Return to Earth* (1973) and (in collaboration with Ken Abraham) *Magnificent Desolation: The Long Journey Home from the Moon* (2009).

Neil Armstrong (1930-2012)



https://commons.wikimedia.org/wiki/File:Neil_Armstrong_in_suit.jpg
Neil Armstrong: photograph taken in May 1969

Born in Ohio, Armstrong's role in the history of space travel was secured when he became the first man to set foot on the Moon in July 1969.

With a keen interest in flight from an early age, Armstrong became a licensed pilot on his sixteenth birthday and a naval air cadet in 1947. His studies in aeronautical engineering at Purdue University in Indiana were interrupted by his service in the Korean War, during which he was shot down twice and awarded three Air Medals. On completing his degree in 1955, he became a research pilot for the National Advisory Committee for Aeronautics (NACA), later subsumed into NASA.

In 1962, Armstrong was one of the second group of astronauts to join the space programme. In March 1966, he commanded the *Galaxy 8* which rendezvoused with an unmanned *Agena* rocket. After the docking, a malfunction sent the spacecraft into an uncontrolled spin forcing them to disengage from the *Agena*. Armstrong then regained manual control of the *Gemini* spacecraft and made a successful, emergency splashdown in the Pacific Ocean.

In the Moon landing of July 1969, Armstrong manually guided the lunar module *Eagle* to the surface at the edge of the Sea of Tranquility. As he stepped onto the lunar surface, people all over the world – watching on TV – heard his famous words: “That’s one small step for [a] man, one giant leap for mankind.” Over twenty-one hours later, the successful rendezvous with the command module, *Columbia*, was followed by splashdown in the Pacific Ocean and a subsequent period of quarantine (eighteen days), to ensure that no lunar microbes had been picked up that might give rise to health issues.

When Armstrong resigned from NASA in 1971, he did his best to avoid publicity, concentrating instead on academic and other professional pursuits. From 1971 to 1979, he was Professor of aerospace engineering at the University of Ohio. After 1979, he served as director or chairman of a number of technology companies until his retirement in 2002. He also served on the National Commission on Space, a panel charged with setting goals for space exploration in 1985-1986. Among the many medals he was awarded were the Presidential Medal of Freedom (1969) and the Congressional Gold Medal (2009).

Michael Collins (1930-)



https://af.m.wikipedia.org/wiki/L%C3%AAer:Michael_collins.jpg
Michael Collins in 1969

Born in Rome, Italy, Collins is best known as pilot of the Command Module, *Columbia*, during the Moon landing of 1969.

Like Buzz Aldrin, Collins was a graduate of West Point Military Academy. He joined the air force and became a test pilot at Edwards Air Base in California. He joined the space programme in 1963.

In July 1966, Collins was involved in the *Gemini 10* mission which achieved a successful rendezvous with an unmanned *Agena* spacecraft. When Collins left the *Gemini* to work with equipment on the two spacecraft, his work had to be curtailed because the *Gemini* was running low on fuel.

In the Moon landing of 1969, Collins played a key role as pilot of the Command Module, orbiting the Moon at an altitude of 97-121 kilometres while Armstrong and Aldrin walked on and investigated the lunar surface. Following completion of the mission and an eighteen-day period of quarantine, the three astronauts undertook a tour of over twenty countries, where they were hailed for their role in opening a new chapter in humankind's exploration of space.

Apollo 11 was Collins' last mission as an astronaut. Later in 1969, he became assistant secretary of state for public affairs in the Nixon administration. In 1971, he became the first director of the National Air and Space Museum in Washington D.C., and in 1978 he was appointed undersecretary of the Smithsonian Institution. From 1980 to 1985, he was vice president of the Vought Corporation, an American aerospace company. He wrote four books, including an account of the *Apollo 11* mission, *Carrying the Fire* (1974), and a history of the American space programme, *Liftoff* (1988).

Lyndon Johnson (1908-1973)

Key personality



<https://nn.m.wikipedia.org/wiki/Fil:Lbj2.jpg>

36th president of the United States, Lyndon Baines Johnson was born in Stonewall, Texas. He began his career as a teacher but his attention soon switched to politics and, following a stint as a congressman's secretary, he was elected to the House of Representatives in 1937 as a 'New Deal' Democrat. Following the bombing of Pearl Harbor, he joined the U.S. Navy and was decorated.

Following the ending of World War II, Johnson was elected to the Senate in 1948 and became majority leader in the Senate in 1955. It was in this position that he first became identified in the public mind with the U.S. space programme. As explained by the historian Robert A. Divine, "In view of the importance of the issue and the failure of President Eisenhower to reassure the American people after Sputnik, it fell to Lyndon Johnson to take the initiative in educating the public on space by leading a congressional inquiry into the American missile and satellite program." The inquiry sessions ran from November 1957 to late January 1958. Throughout, Johnson was at centre stage: he introduced each witness, was the first senator to engage in cross-examination and summarised each day's testimony in his closing remarks. The hearings increased Johnson's public profile and paved the way for the creation of a new space agency: President Eisenhower signed the act creating NASA on 29 July 1958.

When John F. Kennedy became president in 1960, Johnson was appointed vice president. The president put Johnson in charge of the space programme. While the decision to aim for a Moon landing by the end of the decade was Kennedy's, Johnson had responsibility for overseeing the practical implications of this, including an increase in funding for Project Apollo. Johnson was sworn in as president following Kennedy's assassination in November 1963. He was returned as president in the 1964 election with a large majority.

As explored in the case study "Lyndon Johnson and Vietnam, 1963-1968", Johnson's presidency was dominated by the issue of America's involvement in Vietnam and, to a lesser extent, his attempts at creating a 'Great Society' through a programme of major social reforms. Nevertheless, he managed, against many obstacles, to keep the plans for a Moon landing on track, although it was his successor, Richard Nixon, who made the 'photo calls' when the *Apollo 11* astronauts returned to Earth to worldwide acclaim.

John Fitzgerald Kennedy (1917-1963)



https://commons.wikimedia.org/wiki/File:John_F._Kennedy,_White_House_photo_portrait,_looking_up.jpg
White House portrait, 1961

35th president of the United States, Kennedy was born in Brookline, Massachusetts, into a wealthy and influential family. His father, Joseph, was a multimillionaire businessman and, from 1938 to 1940, served as U.S. ambassador to the United Kingdom. (For six months in 1938, John served as his secretary.) His mother, Rose, was the daughter of John F. ('Honey Fitz') Fitzgerald who had been mayor of Boston. Kennedy joined the U.S. Navy in 1941 and, during the Pacific war, was awarded the U.S. Navy and Marine Corps Medal for heroism. His older brother, Joe, whom his father wished to see pursue a political career, was killed during the war, and the family's political ambitions now focused on John.

Kennedy ran for Congress in 1946 as a Democratic Party candidate and won an easy victory. He was twenty-nine years of age. After three terms in the House of Representatives (1947-1953), Kennedy's political ambitions led him to challenge the popular Republican senator for Massachusetts, Henry Cabot Lodge, Jr., an election that he won convincingly. In September 1953, his profile as a senator was enhanced when he married Jacqueline Lee Bouvier whose family had a high social profile. In 1957, his book *Profiles in Courage* won the Pulitzer Prize (though it was later revealed that much of the research and writing had been carried out by his assistant, Theodore Sorensen). When he stood for re-election to the Senate in 1958, his margin of victory was the highest ever in Massachusetts' politics and the highest of any senatorial candidate that year.

In January 1960, Kennedy formally announced his presidential candidacy. Kennedy won the November election by a narrow margin against the Republican candidate, Eisenhower's vice-president, Richard M. Nixon. While much of his presidential term was focused on foreign policy – including his historic visit to West Berlin in 1961 and the Cuban Missile Crisis of the following year – he also started the process that led to the passing of significant civil rights legislation under his successor, Lyndon Johnson.

Kennedy's support for the space programme contributed to the success of the first American space flights and, in May 1961, he made the dramatic commitment to land a man on the Moon by the end of the decade. However, Kennedy did not live to see the outcome of the mission that he had envisioned as he was assassinated on a visit to Dallas, Texas, on 22 November 1963.

Richard Nixon (1913-1994)



[https://commons.wikimedia.org/wiki/File:Richard_M._Nixon_30-0316M_original_\(cropped\).jpg](https://commons.wikimedia.org/wiki/File:Richard_M._Nixon_30-0316M_original_(cropped).jpg)
Official presidential portrait, July 1971

37th president of the United States, Nixon was born in Yorba Linda, California. Following his qualification as a lawyer in 1937, he practised law for a number of years and spent a short stint in the Office of Price Administration in Washington, D.C. In 1942, he joined the navy, serving as an officer in the Pacific war and rising to the rank of lieutenant commander. Returning to civilian life in 1946, he was elected to the U.S. House of Representatives. As a member of the House Un-American Activities Committee (HUUAC) in 1948-1950, he established his reputation as a staunch anti-communist through his hostile questioning of Alger Hiss, a former State Department official, accused of spying for the Soviet Union. In 1950, he ran successfully for the Senate. (It was during this election that he earned the nickname ‘Tricky Dick’.)

Nixon’s somewhat bumpy road to the presidency may be said to have begun when he won the nomination as vice president on a ticket with the incumbent president, Dwight Eisenhower, at the Republican convention of 1952. The pair were successful and served two terms, from 1953 to 1961. In the 1960 presidential election, Nixon, as Republican candidate, was narrowly defeated by the Democratic candidate, John F. Kennedy. He returned to private life in California, writing a bestseller, *Six Crises* (1961). In 1962, he was persuaded to run for governor of California but lost to the Democratic incumbent, Edmund (“Pat”) Brown, after which he announced his retirement from politics. Nixon moved to New York to practise law but, over the next few years, built a reputation as an expert in foreign affairs. His decision to contest the presidency in 1968 was popular with Republicans, but his win against the Democratic candidate, Hubert Humphrey, was by a narrow margin.

Nixon had many successes as president, especially in his first term, including – in foreign policy – his contribution to the ending of the Vietnam War and the establishment of direct relations with the People’s Republic of China, following his visit to China in February-March 1972. His second term ended prematurely when, faced with impeachment over the Watergate scandal, he resigned the presidency in August 1974.

While most of the work on the Moon landing of 1969 was carried out before Nixon became president, he revelled in the worldwide acclaim and had photographs taken with the astronauts in the immediate aftermath. His other contributions to the space programme include support for US-Soviet collaboration in space which led to the *Apollo-Soyuz* Project of 1975 for which new docking arrangements were developed.

Werner von Braun (1912-1977)



https://commons.wikimedia.org/wiki/File:Wernher_von_Braun.jpg

Wernher von Braun: photograph taken on 1 May 1964, the day he became Director of the NASA Marshall Space Flight Center

Born in Germany, von Braun was an engineer who played a leading role in Germany in the development of rockets during the Nazi period and, subsequent to World War II, in the United States where he worked on the development of rockets for space flight and other aspects of space exploration.

Born into an aristocratic family, von Braun received a Ph.D. in physics from the University of Berlin in 1934. Von Braun had already developed a reputation as a rocket engineer and, during the Nazi period, he was technical director of a unit within the armed forces that worked on rocket development. In that role, he directed the development of the V2 rocket which was used in the latter stages of World War II in attacks on London and other cities.

At the end of World War II, in May 1945, von Braun and his team surrendered to U.S. forces. Within a few months, he and members of his team were assigned to the Army Ordnance Corps test site at White Sands, New Mexico, where they worked on captured V2 rockets for high-altitude research purposes. In 1952, von Braun was appointed technical director (later, chief) of the U.S. Army ballistic weapon programme at Huntsville, Alabama, and developed a reputation, nationally and internationally, as a promoter of the idea of space flight. Von Braun became a U.S. citizen in 1955. Following the launch of *Sputnik 1* by the Soviet Union in October 1957, von Braun's team worked on developing a U.S. satellite, launched as *Explorer 1* in January 1958.

When NASA was set up on July 1958, von Braun's team were moved from the army to the new agency. As director of NASA's Marshall Space Flight Center at Huntsville, von Braun led the development of the *Saturn* space launch rockets which were to play such an important role in U.S. space exploration, including the Moon landing of 1969. In March 1970, he was transferred to NASA headquarters in Washington as deputy associate administrator for planning. He resigned from the agency in 1972 to work in private industry.

The Moon landing, 1969: contextual timeline (space race)

1957, 4 Oct.	Launch of <i>Sputnik 1</i> by Soviet Union begins 'space race'	USSR
1958, Feb.	U.S. launches its first satellite, <i>Explorer 1</i>	
1961, 12 Apr.	Yuri Gagarin, Soviet cosmonaut, becomes first man in space	USSR
1961, 5 May	Alan Shepard, U.S. astronaut, become first American in space	
1961, 25 May	President Kennedy: "I believe we should go to the Moon."	
1961-1972	Apollo program: NASA project tasked with landing men on the Moon	
1962-1966	Project Gemini: another NASA project, its purpose was to develop new space travel techniques to support the Apollo missions.	
1962, 20 Feb.	John Glenn becomes the first American to orbit the earth (completing three orbits, compared to Gagarin's single orbit)	
1963, 16 June	Valentina Tereshkova, first woman in space	USSR
1965, 18 March	First space walk: Alexei Leonov	USSR
1965, 3 June	First American space walk	
1966, 3 Feb.	<i>Luna 9</i> : first spacecraft to land on the Moon	USSR
1966, 4 April	<i>Luna 10</i> : first spacecraft to orbit the Moon	USSR
1966, 2 June	<i>Surveyor 1</i> : first American spacecraft to land on the Moon	
1967, 27 Jan.	First American space tragedy: <i>Apollo 1</i>	
1968, 15 Sept.	<i>Zond 5</i> : first spacecraft to orbit the Moon and return	USSR
1968, 21 Dec.	<i>Apollo 8</i> : first manned Moon orbit began	
1969, 16 Jan.	<i>Soyuz 4, 5</i> : first Soviet spaceship manned docking, transferring crew between vehicles	USSR
1969, 20 July	<i>Apollo 11</i> : first Moon landing. ('First man': Neil Armstrong)	
1969, 14 Nov.	<i>Apollo 12</i> : second Moon landing	
1972, 11 Dec.	<i>Apollo 17</i> : last mission to land men on the Moon	

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Useful websites

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<https://www.nbcnews.com/mach/science/eagle-has-landed-remembering-apollo-11-moon-mission-ncsl892566>

<https://www.rte.ie/archives/2014/0721/632081-man-on-the-moon/>

<https://www.archives.gov/publications/prologue/2003/summer/20-july-1969.html>

<https://www.britannica.com/topic/Apollo-11>

<https://www.youtube.com/watch?v=CHMIfOecrlo> (overview effect experienced by astronauts)

<https://www.vox.com/videos/2018/10/23/18013602/moon-landing-apollo-11-saturn-earth-annotated>

<https://www.youtube.com/watch?v=0QLCX-vVWok> (NBC News moon landing flashback)

<https://www.youtube.com/watch?v=mxdJLimrBds> (launch of Apollo 11 Saturn V rocket)

<http://www.clavius.org/index.html> (response to conspiracy theories)

<https://history.nasa.gov/40thann/define.htm>

<http://www.smithsoniansource.org/display/primarysource/viewdetails.aspx?PrimarySourceId=1203>

<https://www.hq.nasa.gov/alsj/a11/a11ov.html>

<https://www.history.com/topics/space-exploration/moon-landing-1969>

<http://www.armaghplanet.com/blog/11-strange-facts-you-didnt-know-about-the-first-moon-landing.html>

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<https://www.nbcnews.com/mach/science/eagle-has-landed-remembering-apollo-11-moon-mission-ncsl892566>

https://www.youtube.com/watch?v=4sKY6_nBLG0 (Margaret Hamilton, the computer programmer whose role in the *Apollo 11* mission was vital)

The Moon landing, 1969: a possible line of enquiry

If students are to understand the themes of the case study, and the carefully-planned actions that led to the historic Moon landing on 20 July, 1969, they will need to explore the reasons why the United States became involved in a ‘race to the Moon’; the careful planning and development that prepared the way for a Moon landing; and the impact the Moon landing had at the time. An enquiry question such as the following may be helpful in this regard:

Why did the United States spend a lot of time and money during the 1960s on the preparations that led to the Moon landing, 1969?

The Moon landing, 1969, is seen as one of the iconic events of the twentieth century. To help students develop their knowledge and understanding of this historic event, it will be important to explore the historical context in which the event took place and the series of government-funded actions that made it possible. Beginning with reasons why the United States started preparations for a Moon landing, the following three stages of enquiry are recommended:

Stage 1: When and why did the United States begin its preparations for a manned landing on the Moon?

Stage 2: What actions did the United States take, and what resources did it commit, in making plans for a Moon landing during the 1960s?

Stage 3: What was the impact of the Moon landing, 1969?

What are the potential benefits of using these questions to focus on the subject matter of the case study?

In the pages that follow, for the three stages of the enquiry a list of “factors identified in commentaries” is followed by a selection of linked primary source extracts and some secondary source extracts.

While most sources have undergone some degree of editing, teachers may decide to engage in further editing of some documents to facilitate use with their own classes.

A possible ‘hook’

The following clip, lasting 1 minute 59 seconds, features excerpts from a contemporary NBC television news report on the Moon landing. It includes footage of the astronauts on the Moon’s surface and audio recording of some of the famous words uttered by the astronauts and Houston Mission Control Center staff at the time. It can be used to introduce some of the main personalities and significant themes of the case study.

<https://www.nbcnews.com/mach/video/relive-the-moment-neil-armstrong-made-history-by-setting-foot-on-the-moon-1003716163747>

TRANSCRIPTS AND WORKSHEET

Transcript 1: on-screen narrative

48 years ago today Neil Armstrong became the first person ever to walk on the moon.

It's still one of the most awe-inspiring moments in human history.

On July 20, 1969 mission commander Neil Armstrong and pilot Buzz Aldrin successfully landed the lunar module Eagle on the moon.

Minutes before the landing things weren't going exactly as planned.

When it came time to land the Eagle, Armstrong had to manually pilot the ship past an area littered with boulders.

During the final seconds of descent, Eagle's computer reportedly began sounding alarms.

As the lunar module was about to land only 30 seconds of fuel remained.

According to bio-sensors Neil Armstrong's heart rate at one point reached 160 beats a minute.

The Eagle finally landed and Neil Armstrong took "one small step" into history.

Armstrong and Aldrin walked around for about three hours conducting experiments.

The two astronauts then joined Michael Collins back in the command module Columbia.

The three returned safely to Earth on July 24.

The Apollo 11 mission was a great leap for space research and a great inspiration to NASA as it works on the Orion spacecraft and the future of Mars exploration.

"... For every American this has to be the proudest day of our lives. And for people all over the world, I am sure that they, too, join with Americans in recognizing what an immense feat this is."

Transcript 2: audio element of Moon landing broadcasts

"In perhaps fifty years from now, or more, when people think of the past they will look at the pictures from last night – but, without waiting that long, here is a shortened and edited version of last night's romantic and technical history."

"30 seconds ... Houston, Tranquility Base here. The Eagle has landed."

"Roger, Tranquility, we copy you on the ground ... You got a bunch o' guys about to turn blue, we're breathin' again, thanks a lot."

They got the flag up now ... you can see the Stars and Stripes."

[President Nixon] "I just can't tell you how proud we all are of what you have done. For every American this has to be the proudest day of our lives. And for people all over the world, I am sure that they, too, join with Americans in recognizing what an immense feat this is."

Questions/points for discussion on video clip

1. This video was compiled forty-eight years after the Moon landing. How many years ago was that?
2. What was the name of the first person to walk on the Moon?
3. What details are given in relation to the lunar module that landed on the Moon on 20 July 1969?
4. “Minutes before the landing, things weren’t going exactly as planned.” What four last-minute difficulties are identified?
5. What is your understanding of the phrase used by Neil Armstrong about taking ‘one small step’ into history?
6. (a) Besides Armstrong, who else landed on the Moon on 20 July?
(b) How long did the two men stay on the Moon and what did they do during that time?
7. How did the two astronauts return to Earth?
8. How does the on-screen narrative seek to convey the importance of the *Apollo 11* Moon landing?
9. Can you explain the places and/or things referred to in the message, “Houston, Tranquility Base here. The Eagle has landed”?
10. Can you explain the comment of a Mission Control Center staff member, “You got a bunch o’ guys about to turn blue, we’re breathin’ again”?
11. Can you explain the comment of a Mission Control Center staff member, “They got the flag up now”?
12. How did President Nixon try to convey to the astronauts the significance of what they had achieved?
13. In the box below, write down two questions prompted by watching the video clip that you would like to see explored during the course of the enquiry.

Enquiry, Stage 1

When and why did the United States begin its preparations for a manned landing on the Moon?

Among the factors identified in commentaries are:

- In the context of the Cold War, the launch of *Sputnik* into space by the Soviet Union in 1957 made Americans fear that the Russians were overtaking them technologically, and this fear was increased when Russian cosmonaut, Yuri Gagarin, became the first man to orbit the Earth on 12 April, 1961.
- The new president, John F. Kennedy, believed it would take a dramatic achievement such as a manned Moon landing to assert America's pre-eminence as the world's major power. He announced his resolution that the U.S. would land a man on the Moon by the end of the decade on 25 May, 1961.
- The development of rocket technology would be a major boost to the United States, economically and militarily, and pioneers of rocket technology such as Wernher von Braun had been recruited by the American military to lead this development.



https://commons.wikimedia.org/wiki/File:Sputnik_en_el_Planetario_de_Madrid_01.jpg
Real-size replica of *Sputnik* outside the Madrid Planetarium, installed in 2007 to commemorate the 50th anniversary of its launch, 4 October 1957

Relevant sources

Source 1

Excerpt from a government document: “Reaction to the Soviet satellite: a preliminary evaluation” (White House Office of the Staff Research Group, Box 35. Special Projects: Sputnik, missiles and related matters, NAID # 12082706), 17 October 1957

One week after the USSR announced that it had launched an earth satellite, a number of broad major effects on world public opinion appeared clear:

1. Soviet claims of scientific and technological superiority over the West and especially the U.S. have won greatly widened acceptance.
2. Public opinion in friendly countries shows decided concern over the possibility that the balance of military power has shifted or may soon shift in favor of the U.S.S.R.
3. The general credibility of Soviet propaganda has been greatly enhanced.
4. American prestige is viewed as having suffered a severe blow, and the American reaction, so sharply marked by concern, discomfiture and intense interest, has itself increased the disquiet of friendly countries and increased the impact of the satellite.

Downloaded 7-1-2019 from https://www.eisenhower.archives.gov/research/online_documents/sputnik.html

Questions and points for discussion

1. What was the name of the “earth satellite” to which the document refers?
2. What claims made by the Soviet Union were now seen as enjoying “greatly widened acceptance” as a result of the satellite launch?
3. What concern over “the balance of military power” was now evident in the opinions of many people in countries that were friendly to the U.S., as a result of the satellite launch?
4. What do the writers mean when they say that, “The general credibility of Soviet propaganda has been greatly enhanced”?
5. Explain the point made by the writers about the ways in which the American reaction to the satellite launch has affected the attitudes of “friendly countries”.

Source 2

A man will definitely be put into outer space within the next ten years, said Dr. Wernher von Braun, America’s leading rocket scientist in an interview last night on British television. He disclosed that America’s second satellite would be launched before the end of April.

Dr. Braun, the brain behind Germany’s V2 rockets of the second World War, was being interviewed in Washington by Robin Day in the Independent Television news series, “Tell the People”.

The Irish Times, 3 March, 1958

© The Irish Times

Questions and points for discussion

1. What prediction was made by Dr. Wernher von Braun in March 1958?
2. What information about von Braun does Source 2 provide?
3. What was the context in which von Braun made the prediction?

Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com

Source 3

The great space race between Russia and the United States, on which thousands of millions of roubles and dollars have been spent, ended yesterday with the news that Russia had successfully launched and recovered a man from space, following a 108 minute orbit of the earth.

The Soviet Union went wild with joy over the epoch-making voyage of the “cosmonaut”. 27-year old Major Yuri Alexeyevitch Gagarin, described by Moscow Radio as “the Columbus of interplanetary space”. He is a married man with two small daughters.

Early yesterday his spaceship, Vostok (East), roared into orbit at 18,000 m.p.h., made rather more than one complete circuit of the earth, and landed at a prearranged spot 108 minutes later – decisively winning the long space race with America.

The Irish Times, 13 April, 1961

© The Irish Times

Questions and points for discussion

1. Discuss why the writer claims that “The great space race between Russia and the United States” had ended the previous day.
2. Suggest reasons why Moscow Radio described Yuri Gagarin as “the Columbus of interplanetary space”.
3. What details of the historic space voyage does Source 1 provide?



<https://commons.wikimedia.org/wiki/File:Yuri-Gagarin-1961-Helsinki-crop.jpg>
Photograph of Yuri Gagarin taken during visit to Finland, 3 July 1961

Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com

Source 4: excerpt from *Irish Times* report

President Kennedy went before a joint session of Congress yesterday to deliver what he called “a special message on urgent national needs”. He called for greatly increased expenditure on the U.S. space programme, on arms, foreign aid, and a renewed attack on unemployment.

America, he said, should commit itself to landing a man on the moon by 1970 and returning him safely to earth. This project alone would cost an extra £189,000,000 this year and from £2,500,000,000 to £3,200,000, 000 over the next five years. In a very real sense it will not be one man going to the moon: it will be the entire nation,” Mr. Kennedy said, “for all of us must work to put him there.”

The Irish Times, 26 May, 1961

© The Irish Times

Questions and points for discussion

1. Explain what is meant in the opening of the report by “a joint session of Congress”.
2. Discuss why the president was seeking “greatly increased expenditure on the space programme”.
3. What unexpected proposal did the president make to the assembled members of Congress?
4. What implications of his proposal did the president spell out in his speech?

Secondary Source 1

News of *Sputnik* and subsequent Soviet conquests of space jarred the American people. What might the Russians actually do with the capability to send payloads into orbit? Would future rockets carry warheads? Could the Russians establish military outposts on the moon – or ever deeper in space? The implications were depressing. The United States needed to overtake and surpass the Russians; second place in this conquest could have dire consequences.

On May 25, 1961, President Kennedy made a special address to a joint session of Congress in which he discussed the new “space race” within the context of Cold War rivalry with the Soviet Union and other communist nations. “Now it is time to take longer strides – time for a great new American enterprise – time for this nation to take a clearly leading role in space achievement which in many ways may hold the key to our future on earth.” ... He then proposed a shockingly improbable goal, one more ambitious than any before it. “I believe we should go to the moon,” he stated simply.

Christopher B. Strain (2017), *The Long Sixties: America, 1955-1973*. Chichester: Wiley Blackwell, p. 132.

Questions and points for discussion

1. News of Sputnik “jarred the American people”. What does the writer mean?
2. What fears did American people have in relation to possible future actions by the Russians in outer space, according to the writer?
3. The writer says that, “The United States needed to overtake and surpass the Russians” in space exploration. What phrase do historians use to describe this?
4. What was the context in which the president framed his proposal to send a man to the Moon?

Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com

Enquiry, Stage 2: What actions did the United States take, and what resources did it commit, in making plans for a Moon landing during the 1960s?

Among the factors identified in commentaries are:

- Project Gemini (1962-1966) was set up to investigate the operational and practical aspects of working and living in outer space.
- The Apollo Program (1961-1972) focused on the challenge of landing a man on the Moon, including the development of space ships and computerised systems that could carry out the series of complex manoeuvres that would be required.
- The Apollo Program alone cost between \$25 billion and \$35 billion dollars. Each trip to the Moon cost around half a billion dollars.
- The preparations for a Moon landing involved the biggest scientific and technological undertaking in history. It has been estimated that three hundred thousand engineers and other technical staff were involved and many entirely new inventions were developed to meet the challenges of space travel. Computer programmer Margaret Hamilton and other women played important roles.

Relevant sources

Secondary Source 2

Between 1962 and 1966, Project Gemini was tasked with developing “operational capacity in space” and investigating “the problems of working and living in space” as NASA continued to assemble the necessary talent and materials to chase a dream. Under the longer-running Apollo Program (1961-1972) – with its thirty-three flights, eleven of which were manned – NASA focused on the task of actually landing on the moon via lunar rendezvous and coupling, in which a smaller lander leaves the main spacecraft in orbit, descends to the moon’s surface, then returns to lunar orbit to re-dock with the bigger craft to return to Earth. The work involved was almost unimaginable, constituting the largest scientific and technological undertaking in history. Three hundred thousand engineers and technical staff persons, working for 20,000 contractors, made entirely new inventions – from cordless tools to freeze-dried foods – to accomplish the task. The entire science of transistors, integrated circuits, and computer microchips had to be invented and debugged before rocket experts could plan launches and recovery. Working feverishly, NASA scientists and engineers boldly went where none had gone before – and spent tens of billions of dollars in the process.

Christopher B. Strain (2017), *The Long Sixties: America, 1955-1973*. Chichester: Wiley Blackwell, pp. 134-135.

Questions and points for discussion

1. What specific tasks was Project Gemini set up to accomplish? Explain your answer.
2. In what ways did the Apollo Program differ from Project Gemini, according to the writer?
3. What explanation does the writer give of the expression “lunar rendezvous and coupling”? Can you explain this in your own words?
4. The work involved in preparing for the Moon landing was “the largest scientific and technological undertaking in history”. How does the writer justify this view?

Source 5

The following is an edited excerpt from an *Irish Times* editorial, 17 June 1963.

Only last week, the United States announced the end of Project Mercury, under which four men went into orbit. On paper, its achievements have been less impressive than the Soviet Union's. Project Gemini, which will put two men into space, has already been started on. The first tests are announced for the end of this year, and the first manned flight in the programme is expected to take place at the end of 1964 leading to further flights of up to two weeks' duration.

The Irish Times, 17 June, 1963

© The Irish Times

Questions and points for discussion

1. The report mentions the United States' first space programme under which four astronauts went into space (in separate flights). What name was given to that programme?
2. The word 'Gemini' refers to twins. What was one way (mentioned in the report) in which Project Gemini reflected this meaning of the name?
3. How were Gemini flights due to differ from Mercury ones?

Source 6

The following is an edited excerpt from an *Irish Times* editorial, 9 April 1964.

The U.S. successfully put into orbit this morning an unmanned Gemini space capsule, designed eventually to carry two men into space for periods as long as a fortnight.

The second generation of manned space programmes thus got off to a perfect start and the Titan rocket, which was developed as an intercontinental ballistic missile, proved its versatility.

The 29 astronauts, from whom the Gemini's first passengers will be chosen later this year, watched the 90 feet Titan roar away after a perfect countdown, its first stage engine generating 430,000 lb. of thrust. Their interest, like that of the many other space scientists gathered at Cape Kennedy, Florida, was focussed primarily on the first five minutes and 35 seconds of flight – the time it took for the Titan to exhaust the fuel in its two stages and inject the capsule into orbit – and a variety of measurements were made to ascertain the temperature, pressure and noise to which future astronauts will be subjected.

The Irish Times, 9 April, 1964

© The Irish Times

Questions and points for discussion

1. Read carefully this report on the first Gemini flight. What can we learn from the report about the reasons why this flight was unmanned? Explain your answer.
2. What information are we given about the Titan rocket that was used to propel the Gemini spacecraft into space?
3. Discuss why twenty-nine astronauts watched the launch of the Gemini spacecraft.

Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com

Source 7

The following are the headlines and initial paragraphs of an *Irish Times* report, 16 December 1965:

ASTRONAUTS HOLD SPACE RENDEZVOUS SIX-FOOT GAP SEPARATES SPACECRAFT

The two astronauts, Walter Schirra and Thomas Stafford, made a successful take-off from Cape Kennedy yesterday aboard Gemini 6 and approached to within six feet of Gemini 7, which has been orbiting the earth for 12 days.

The close approach was made 185 miles above the Mariana islands, north of Guam, while the two vehicles were orbiting at more than 17,000 miles an hour.

U.S. scientists consider that the operation was an important step towards the time when large laboratories will orbit the earth and serve as bases for space research.

The Irish Times, 16 December, 1965

© The Irish Times

Questions and points for discussion and research

1. What is the meaning of the term 'space rendezvous' as used in the newspaper headline?
2. For how long had *Gemini 7* been orbiting the Earth prior to the rendezvous with *Gemini 6*?
3. What was the approximate speed of the two spacecraft when the rendezvous took place?
4. According to the report, how did U.S. scientists view the significance of the rendezvous?

Source 8

An important first step towards putting a man on the moon was taken at Cape Kennedy, Florida, on Saturday.

The new American Saturn 1-B rocket dispatched an unmanned Apollo spacecraft on a 39-minute sub-orbital flight to a landing 5,300 miles away in the South Atlantic.

The launching followed more than four years of preparation and preceded by less than four years the scheduled first lunar landing by American astronauts.

The preparations began in May 1961 when defence and space officials gathered in the Pentagon office of the U.S. Defence Secretary, Mr. Robert McNamara, to consider a project that would challenge the United States and excite all mankind.

The Irish Times, 3 March 1966

© The Irish Times

Questions and points for discussion

1. Read the report carefully. Discuss why the launch described was "An important first step towards putting a man on the moon".
2. What type of rocket was used for the first time to launch an Apollo spacecraft?
3. What historic announcement by President Kennedy was the outcome of the Pentagon meeting referred to in this report?

Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com



https://commons.wikimedia.org/wiki/File:Remembering_the_Apollo_1_Crew.jpg

The crew of *Apollo 1*, Gus Grissom, Ed White and Roger Chaffee, who died in a fatal accident in a pre-launch test of the spacecraft, 27 January 1967

Source 9

The following is an excerpt from an article published in *The Irish Times*, 26 August 1967. It was written by Kenneth W. Gartland, then vice-president of the British Interplanetary Society and Editor of *Space Flight*. The article was entitled “Is there still a moon race?”.

When the space race claimed its first victims earlier this year, America and Russia were on the brink of exciting new ventures. At Cape Kennedy astronauts were preparing to test their Apollo spacecraft in Earth-orbit. Soviet cosmonauts were in the last stages of training for similar test-flights in the Soyuz (Union) spacecraft.

The first tragedy came in America when fire swept the Apollo capsule during a launch pad rehearsal on January 27th, killing Virgil Grissom, Edward White – experienced astronauts – and Roger Chaffee. The disaster immediately set back America’s moon programme a year.

Modifications required to make the spacecraft “safe” are extensive. They include changing to less flammable materials in the cabin, provision of a quick-release hatch, new fire-resistant spacesuits and modifications to launch facilities at Cape Kennedy. When changes in spacecraft manufacture and delivery schedules are taken into account, the cost is estimated at around \$75 million.

The Irish Times, 26 August 1967

© The Irish Times

Note: The victim of the Russian tragedy mentioned in the opening paragraph was Colonel Vladimir Komarov, who plunged to his death on 24 April whilst returning to Earth in the re-entry capsule of *Soyuz 1*. According to the Soviet authorities, the tragic accident was due to entanglement of the shroud lines of the landing parachute.

Questions and points for discussion

1. According to the article, what similarities were there between the American and Russian space missions that ended in tragedy in 1967?
2. What details does the writer give about the *Apollo 1* disaster and its consequences?
3. In what sense did the accident lead to a cost of \$75 million?

Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com

Source 10

The following is an excerpt from an article published in *The Irish Times*, 22 October 1968. It was written by Arnold Whittaker and Thomas Kelly, lead engineers on the team that developed the lunar module. The article was entitled “How Americans plan to land on the moon”.

Altogether about 2,000 spacecraft hours and some 5,000 astronaut hours are scheduled to be logged before America’s lunar mission takes place. We’re hoping this comes off in 1969 but are prepared to live with unforeseen delays that will push us into 1970. Since 1962, NASA (National Aeronautics and Space Administration) has followed the concept that the lunar orbit rendezvous mode is the best way of getting a team of men on the moon and our LM (Lunar Module) is a result of this decision.

It is really the world’s first true spacecraft, designed to operate solely as a ferry between a spacecraft orbiting the moon and the moon surface. Once it brings the astronauts back up into space, it will be left like a piece of junk while its passengers return to the earth. It is probably the ugliest-looking thing American engineering has ever built – but we’re very proud of it.

The basic outward design of the LM hasn’t changed appreciably since 1964. It’s basically two units in one – a descent stage with landing gear to drop the men onto the moon and an ascent stage to get them off again. Its weight at earth launch is 32,000 pounds, approximately three quarters of which is fuel.

The Irish Times, 22 October 1968

© The Irish Times

Questions and points for discussion

1. Discuss the reason(s) why the writers mention “spacecraft hours” and “astronauts hours” in the opening sentence.
2. The writers say that “unforeseen delays” may delay the lunar mission. Had any unforeseen delays happened previously? Explain your answer.
3. What decision that was taken by NASA in 1962, regarding the lunar mission, do the writers mention?
4. What was the sole purpose of the lunar module, according to the writers?
5. What was to happen to the lunar module once the astronauts returned to the main spacecraft?
6. What other details regarding the lunar module do the writers provide?



[https://commons.wikimedia.org/wiki/File:Apollo_11_lunar_module_\(cropped2\).jpg](https://commons.wikimedia.org/wiki/File:Apollo_11_lunar_module_(cropped2).jpg)
Picture taken by Michael Collins in command module as *Eagle* ascended, 21 July 1969

Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com

Source 11

Less than six hours after the perfect return of Apollo-9 and its three astronauts, the National Aeronautics and Space Administration announced in Houston, Texas, that Apollo-11 would take off for the moon on July 15th and two men would make a lunar landing on July 19th.

General Samuel Phillips, manager of the Apollo programme, said that, in May, Apollo-10 would orbit the moon with the lunar module descending to within nine miles of the moon's surface.

Yesterday the capsule carrying the Apollo-9 astronauts, Lt.-Col. James McDivitt, Lt.-Col. David Scott and Mr. Russell Schweickart splashed into the Atlantic 180 miles (290 km.) east of the Bahamas at 6.01 Irish Time.

It was 10 days and 151 orbits of the earth after they had set out to prove that the American method of landing men on the moon – and later on the planets themselves – can work.

The Irish Times, 14 March 1969

© The Irish Times

Questions and points for discussion

1. What were the names of the three astronauts who flew in *Apollo 9* in March 1969?
2. What two announcements were made by NASA shortly after the return of *Apollo 9* and its three astronauts?
3. Besides the names of the astronauts, what other details does the report contain of the *Apollo 9* mission?
4. What can we learn from this report about the preparations for the Moon landing of July 1969?

Manned Apollo missions

Mission	Date(s)	Outcome
Apollo 1	1967, 27 January	Pre-launch test leads to accidental death of three astronauts
Apollo 7	1968, 11 October	First Apollo mission to carry a crew into space
Apollo 8	1968, 21 December	First space flight to orbit the Moon
Apollo 9	1969, 3 March	First manned flight test of lunar module
Apollo 10	1969, 8 May	'Dress rehearsal' for lunar landing
Apollo 11	1969, 20 July	First Moon landing

Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com

Source 12

This is an edited excerpt from an *Irish Times* report on the launch of *Apollo 10*.

After an excellent take-off yesterday, America's Apollo-10 spaceship was progressing on its three-day journey this morning to the vicinity of the moon with three veteran astronauts on board.

The giant Saturn-V rocket performed immaculately, blasting the command capsule and its lunar module off the launch-pad smoothly up through a cloudy sky, which had threatened rain and possible postponement.

The astronauts sent back the first deep space television portrait of the earth later yesterday as their spacecraft sped towards the moon. The earth showed up as a ball streaked with blue, white, green and brown against a background of cold and fathomless black.

The journey to the moon is over 230,000 miles and will take them just over three days. In lunar orbit the astronauts will give the lunar module a thorough work-out, flying down to within 50,000 feet of the lunar surface, and returning to link up with the mother craft.

The Irish Times, 19 May 1969

© The Irish Times

Questions and points for discussion

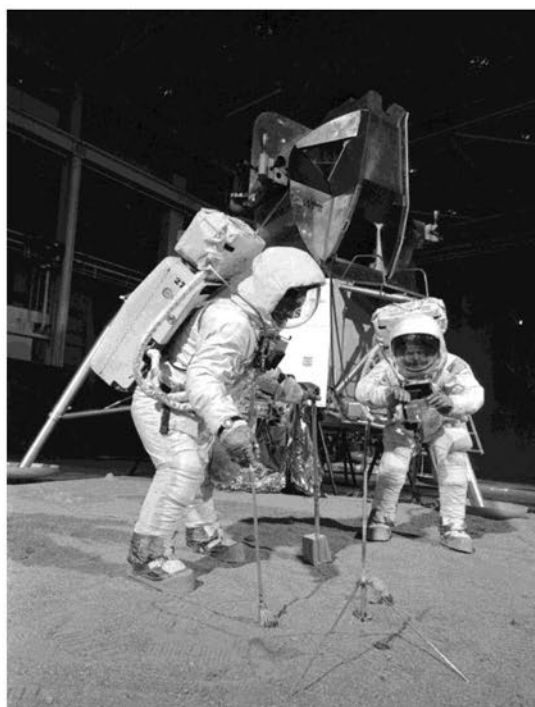
1. What details about the *Apollo 10* mission are given in the opening paragraph?
2. What three elements of the *Apollo 10* spacecraft are mentioned in the second paragraph?
3. What historic achievement of the *Apollo 10* mission is mentioned in the third paragraph?
4. What details about the *Apollo 10* mission are given in the fourth paragraph?



https://commons.wikimedia.org/wiki/File:Astronauts_Thomas_P._Stafford,_Apollo_10_commander;_and_John_W._Young,_command_module_pilot,_await_pickup_by_the_recovery_helicopter_from_the_prime_recovery_ship,_USS_Princeton.jpg

Astronauts Thomas P. Stafford and John W. Young await pick-up by the recovery helicopter, following splashdown in the Pacific Ocean, c. 400 miles east of American Samoa.

Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com



[https://commons.wikimedia.org/wiki/File:Apollo_11_Crew_During_Training_Exercise_\(9460197354\).jpg](https://commons.wikimedia.org/wiki/File:Apollo_11_Crew_During_Training_Exercise_(9460197354).jpg)
Photograph taken on 22 April, 1969. Two members of the *Apollo 11* lunar landing mission take part in a training exercise to prepare them for gathering samples on the Moon. Buzz Aldrin, Jr., is on the left and Neil Armstrong on the right.

Secondary Source 3

By the end of May, Armstrong, Collins and Aldrin were tired men. They were spending ten, twelve, fourteen hours a day in their simulators – the gigantic earthbound machines which John Young called “the great train wreck.” All week they would work in those machines at Cape Kennedy in Florida, then fly in T-38 jets to their homes near Houston to mow the lawn and cope with household matters like television breakdowns and leaky plumbing and childhood injuries. They saw little of their wives, and what little Jan Armstrong saw of Neil Armstrong during that period bothered her a good deal: “Neil used to come home with his face drawn white, and I was worried about him. I was worried about all of them. The worst period was in early June. Their morale was down. They were worried about whether there was time enough for them to learn the things they had to learn. To do the things they had to do, if this mission was to work.”

Neil Armstrong, Michael Collins, Edwin Aldrin, Jr., written with Gene Farmer and Dora Jane Hamblin (1970), *First on the Moon: A Voyage with Neil Armstrong, Michael Collins, Edwin Aldrin, Jr.*. London: Michael Joseph, p. 27.

Questions and points for discussion

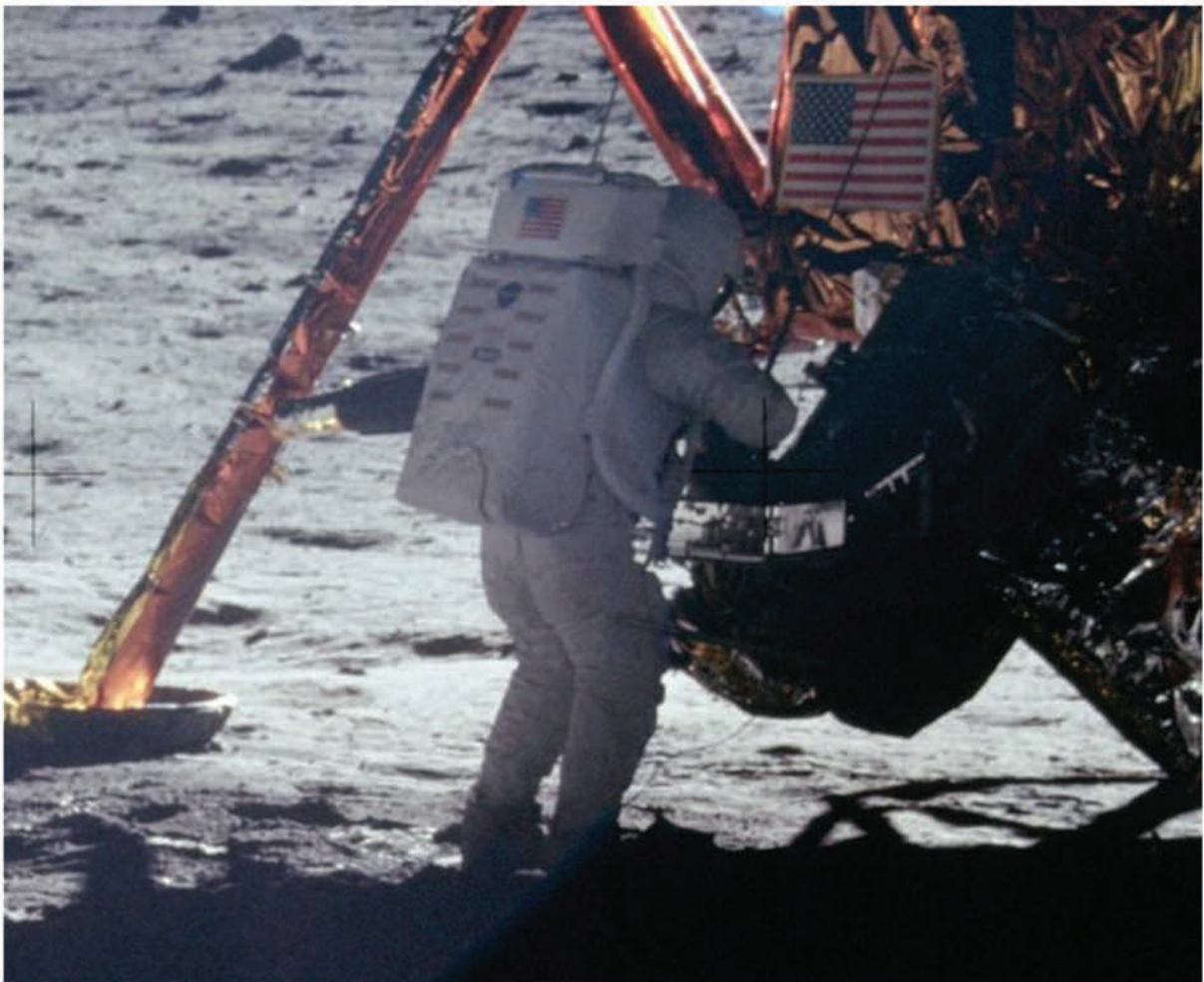
1. What explanation does the writer give for Armstrong, Collins and Aldrin being tired men by the end of May 1969?
2. How does the writer describe the weekends spent by the three astronauts at that time?
3. Explain why Jan Armstrong was worried by her husband, Neil, and his colleagues, during this period of time.

Enquiry, Stage 3: What was the impact of the Moon landing, 1969?

Among the factors identified in commentaries are:

- Up to a quarter of the world's population watched the event on television.
- For Americans, there was relief and deep satisfaction that the United States had got to the Moon before the Soviet Union.
- The event was seen as a significant marker in humankind's technological progress and ability to explore space – by Americans and by many people worldwide.
- Some of the reaction at the time was 'over the top' – and the event did not lead on to further achievements in space in the way that some people had anticipated.
- Some Americans criticised the vast sums spent on sending men to the Moon while poverty and social inequalities were neglected.
- The event helped to increase interest in the ecology movement, as images of the Earth from outer space increased people's environmental consciousness of Earth's finite resources and cosmic vulnerability.

FIRST MAN



<https://commons.wikimedia.org/wiki/File:As11-40-5886.jpg>

Neil Armstrong works at the lunar module: photograph taken from Moon surface.

Relevant sources

Source 13

At 20 seconds after 3.56 A.M. (Irish time) today, the first man set foot on the Moon. He was Neil Armstrong, commander of the Apollo-11 mission who, almost seven hours earlier at 9.17 and 45 seconds – had piloted the lunar landing module, Eagle, to an almost perfect landing in the Sea of Tranquillity.

At 4.14 he was joined on the surface of the Moon by his companion in the module, Edwin Aldrin.

Armstrong's first words on the moon were: "That's one small step for man. One giant leap for mankind."

The hatch of the lunar module opened at 3.40. But before placing his foot on the top rung of the descent ladder, Armstrong stood on the threshold and communicated his first impressions of lunar gravity and what he could see back to Earth.

A short way down the ladder, he said: "Okay, I'm going to pull it down." He referred to the instrument pack containing the television camera.

At the bottom, Armstrong said his foot sank into the surface very, very slightly, "but I can see my footprint." "There seems to be no difficulty in moving around," he said, as he moved away from Eagle's leg.

"It's a very soft surface, but here and there where I poke with the sample collector I run into a very hard surface," even though "it appeared to be the same material."

The Moon "has a harsh beauty all its own," he reported. "It looks like the desert of the United States, but it is very beautiful."

In Houston, Space Centre surgeons said that "data is good and Moon crew doing well," as Armstrong took his historic steps and Aldrin took pictures.

The Irish Times, 21 July 1969

© The Irish Times

Questions and points for discussion

1. What information is given in the first paragraph about the first man to set foot on the Moon?
2. How long was Armstrong on the Moon's surface before he was joined by his companion in the lunar module, Edwin Aldrin?
3. What were Neil Armstrong's first words on the Moon, according to the report? Compare this with the account given by Susan Jacoby in Source 15.
4. How did Armstrong get from the lunar module to the surface of the Moon?
5. Name two pieces of equipment that Armstrong brought with him, according to the report.
6. What description of the Moon did Armstrong give as he moved around?
7. Discuss the role of the Houston space centre in the Moon landing.

Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com

Source 14

Ground Control called the two into camera range for a conversation with President Nixon, who said: "This must be the most historic telephone call ever made."

"Because of what you have done," Mr. Nixon told them, "the heavens have become part of the Earth. For the first time in the history of man, all the people on this Earth are truly one."

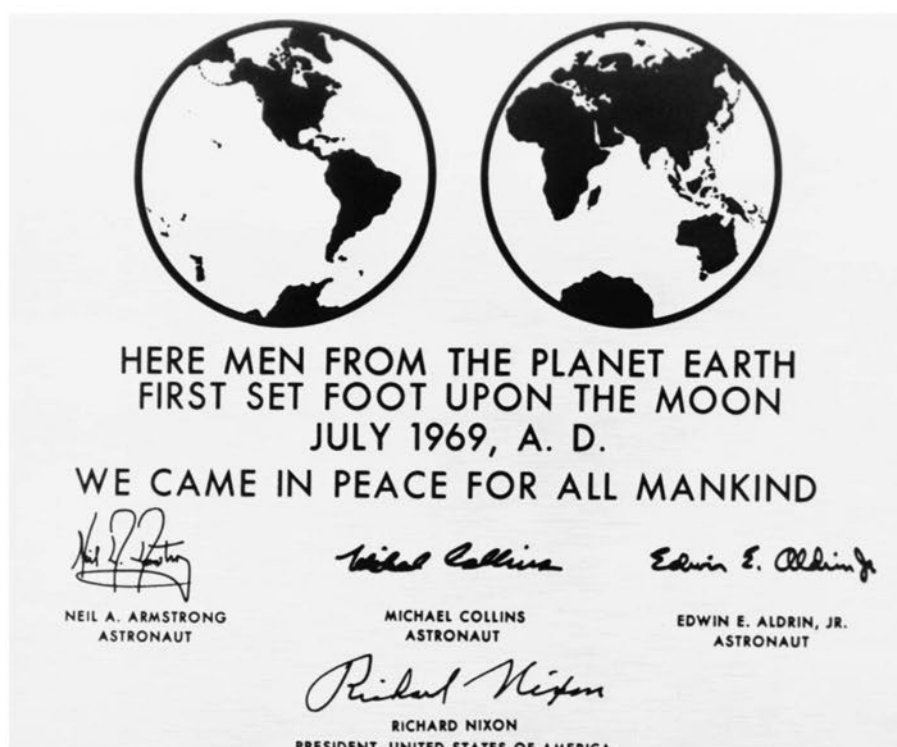
Armstrong replied with thanks saying that it was "a great honour and privilege for us to be here, representing not only the United States but men of peace of all nations."

The Irish Times, 21 July 1969

© The Irish Times

Questions and points for discussion

1. The two "called ... into camera range for a conversation with President Nixon" were the two who landed on the Moon. What were their names?
2. Suggest why some critics have found President Nixon's remarks to be hyperbolic ('over the top' or exaggerated).
3. In the context of the Cold War, what is the significance of Armstrong's reference to "men of peace of all nations"? (See also message on image of plaque below.)



https://commons.wikimedia.org/wiki/File:A11.plaque_image.png

Image of plaque to be left behind on Moon: 14 July 1969

Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com

Source 15

Throughout my childhood in the 1950s, Americans regarded science and medicine with a respect bordering on reverence. American technology and science were given the lion's share of the credit for Allied victory in the Second World War, and few ordinary Americans doubted either the wisdom or the morality of the atomic attacks on Hiroshima and Nagasaki that finally brought an end to the fighting in the Pacific. As far as the public was concerned, American preeminence in science was a given until the Soviet Union launched its Sputnik in 1957, but fear that the Russians might win the space race actually raised the prestige of science by providing a rationale for large increases in government spending on basic scientific research and science education. The moon landing in 1969 would probably never have happened without the blow to America's sense of superiority twelve years earlier. Neil Armstrong's walk on the moon, however, represented more than a national and nationalistic achievement: it was a unique moment in which not only technological prowess but the imaginative possibilities of science and exploration were illuminated for Americans and millions of others around the globe.

I happened to be in Florence on that July day, and I watched the moon landing, along with a crowd of fellow tourists and Florentines in a television store. We all caught our breaths at Armstrong's famous line, "That's one small step for a man, one giant leap for mankind." An Italian aptly remarked that we were especially privileged to be watching this event on ground hallowed by "the footsteps of Galileo."

Susan Jacoby (2008) *The Age of American Unreason: Dumbing Down and the Future of Democracy*. London: Old Street Publishing, pp.217-218.

Questions and points for discussion

1. How does the writer explain the impact of the launch of *Sputnik* by the USSR in the context of American assumptions about their role in the world of science and technology?
2. Explain the connection that the writer makes between the launch of *Sputnik* in 1957 and the Moon landing twelve years later.
3. Can you explain the reaction of the writer and her fellow tourists and Florentines when Armstrong uttered his famous 'giant step' line?
4. Discuss the significance of the reference to Galileo by one of the Italians present.



https://commons.wikimedia.org/wiki/File:Land_on_the_Moon_7_21_1969-repair.jpg
Young girl reading about the Moon landing in the *Washington Post* newspaper, 21 July 1969

Secondary Source 4

Touchdown: it was 3:18 P.M. in Houston, where the event had the most shattering, personal impact; it was 4.18 P.M. in New York, where they stopped a baseball game to announce the news and sixteen thousand people stood in Yankee Stadium to sing, joyously, “The Star-Spangled Banner”; it was 6:18 A.M., July 21, at the Honeysuckle Creek tracking station in Australia, where a staff of about one hundred was hanging onto the touchdown by radio circuits. But the date that would live in the history books was July 20. That was the calendar date in the United States, the nation which had underwritten the incredible voyage with much of its treasure and a little bit of its blood. July 20: the aviator Alberto Santos-Dumont was born on that day in 1873; Guglielmo Marconi, inventor of wireless communications, died on that day in 1937. But as long as human civilization endured men would remember July 20 for another reason: that was the day three American astronauts named Armstrong, Collins and Aldrin put man on the moon.

Neil Armstrong, Michael Collins, Edwin Aldrin, Jr., written with Gene Farmer and Dora Jane Hamblin (1970), *First on the Moon: A Voyage with Neil Armstrong, Michael Collins, Edwin Aldrin, Jr.* London: Michael Joseph, pp. 9-10.

Questions and points for discussion and research

1. Can you explain why the writers say it was in Houston that the touchdown (landing on the Moon) “had the most shattering, personal impact”?
2. How do you interpret the response of the spectators at a baseball game in New York, as described by the writers?
3. Research point: What was the Honeysuckle Creek tracking station in Australia?
4. Discuss the reference to the American nation having “underwritten the incredible voyage with much of its treasure and a little bit of its blood.”

Source 16

The Moon explorers, Neil Armstrong and Edwin Aldrin, blasted off the Moon in their lunar landing module, Eagle, and joined up with the mother ship, Columbia, last night, conquering the final unknown hazard of the Apollo-11 expedition. Early today the spacecraft was in its last lunar orbits before the 238,000-mile journey home.

Their blast-off from Tranquility Base came exactly on schedule at 6.54 p.m. (Irish time). After a series of intricate manoeuvres, the first two men to walk on the Moon linked up with Columbia, piloted in orbit by Michael Collins.

The docking took place at 10.37 p.m., just over five hours after their blast-off from the Moon. Armstrong and Aldrin, with their precious lunar samples, crawled through a tunnel connecting Eagle with Columbia, and were re-united with Michael Collins, the Apollo-11 pilot. Finally, the lunar module was jettisoned at 1.40 a.m.

The Irish Times, 22 July 1969

© The Irish Times

Questions and points for discussion

1. Explain the terms “blast-off” and “docking” as used in Source 16.
2. What details of the blast-off and docking does the report give?
3. Explain the references to “precious lunar samples” and the LM being jettisoned.
Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com

Source 17

Under the headline, “Worldwide praise for U.S. success”, *The Irish Times* gave the reactions of various world leaders:

THE VATICAN: “Man looks forward to expansion in space without limit and towards new destinies,” Pope Paul told the astronauts in a brief message.

PARIS: President Pompidou told President Nixon that “American science has just achieved one of man’s greatest dreams.”

ATHENS: Mr. George Papadopoulos, the Greek prime minister, proclaimed yesterday a public holiday throughout Greece “to demonstrate admiration and extol the historical significance of this exploit.”

BONN: America’s flight to the Moon demonstrates anew that Europeans are doomed to political and economic satellite status unless they unite quickly, West German Foreign Minister, Herr Willy Brandt declared yesterday.

“Apollo has shown us that the requirements of men and material for modern technology are far greater than within national frameworks,” he said in a speech to a European seminar.

“No single European state can even approach a similar achievement. The necessity of cooperation is inescapable,” he said.

THE HAGUE: Newspapers praised the American TV coverage of the Moontrip, which was shared with the world as “a piece of American democracy in which this often sharply criticised country distinguishes itself from the Soviet Union.”

AMMAN: *Constitution* daily newspaper expressed the fear that America would use the Moon for military bases from which she would direct her means of destruction on the Earth.

The Irish Times, 22 July, 1969

© The Irish Times

Questions and points for discussion

1. Discuss the meaning of Pope Paul’s message to the astronauts as given in the report.
2. Explain the significance attached to the Moon landing by President Pompidou of France.
3. Explain the significance attached to the Moon landing by the Greek prime minister, Mr. Papadopoulos.
4. What political point did the German foreign minister, Herr Willy Brandt, choose to make about the significance of the Moon landing?
5. The Hague is the seat of government in the Netherlands. What did a Dutch newspaper describe as “a piece of American democracy” in its reporting of the Moon landing?
6. The Dutch newspaper report referred to the United States as “this often sharply criticised country”. Can you think of any significant area of policy on which the U.S. was being widely criticised at this time?
7. Amman is the capital of Jordan. Jordan was one of the Arab states involved in the Six Day War against Israel in 1967. Discuss why the *Constitution* newspaper may have expressed the fear that America would use the Moon for military bases.
8. Which of the comments reported in the various newspapers would now be widely regarded as ‘over-the-top’ or exaggerated?

Irish Times archive material supplied courtesy of The Irish Times at www.irishtimes.com



https://commons.wikimedia.org/wiki/File:Auckland_Star_Apollo_11_Moon_Landing_Front_Page.jpg
Front page of *Auckland Star* (New Zealand), 21 July 1969

Secondary Source 5 (edited)

On July 20, 1969, Neil Armstrong became the first man to walk on the moon. Live TV broadcasts enabled a quarter of the world's population to watch him. It was an intensely thrilling moment, the climax of man's technological prowess to that date. The most extravagant self-acclaim followed it. Winning the moon race showed the merits of free enterprise, the American way of life, and, perhaps, Christianity. More generous observers extended credit to all mankind. President Nixon thought it the best week's work since the creation. Walter Cronkite of CBS News believed it put the hippies and other dissidents in their place. The three astronauts – Armstrong, Edwin Aldrin and Michael Collins – became international heroes and seemed destined to spend the rest of their lives getting and giving honors. It was NASA's finest moment, perhaps also its most self-destructive. This seeming paradox derived from its primary mission – beating Russia to the moon. Having done so, what else remained?

William L. O'Neill (1971), *Coming Apart: An informal history of America in the 1960s*. New York: Times Books, p. 59.

Questions and points for discussion

1. What role did TV play in making the Moon landing an international event, according to the writer?
2. Explain what the writer means when he describes the Moon landing as “the climax of man's technological prowess to date”.
3. The writer says that the Moon landing was followed by “The most extravagant self-acclaim”. What does he mean by this and what examples does he give?
4. What do you think the writer means when he says that the Moon landing was NASA's greatest moment?
5. How does the writer explain his suggestion that, for NASA, the Moon landing was “perhaps also its most self-destructive [moment]”?



https://en.wikipedia.org/wiki/File:First_Man_on_Moon_1969_Issue-10c.jpg
U.S. postage stamp, 9 September 1969

Secondary Sources 6

... And then there were the telegrams – hundreds of them, thousands of them. Somebody named Tom E. Slater, in Chanute, Kansas, addressed his telegram to “Commander Armstrong, Apollo 11, Splashdown, U.S.A. A family in Gomel, Byelorussia, U.S.S.R. cabled: “Dear Lunamen, we are overwhelmed and very proud of your remarkable achievement.” It was signed “the family of Murtazin.” From St. James’s Palace in London came “Warmest congratulations on your historic achievement.” The cable was signed by one Colonel Armstrong Aldrin Collins of the Queen’s Guard

... And the rituals: ticker tape parades in New York and Chicago and the President’s state dinner in Los Angeles, all in one tumultuous day in which the Apollo 11 astronauts finally got a glimpse, jumbled and kaleidoscopic but accurate for all that, of the emotions their achievement had evoked in the American people. The visits to hometowns, and a formal appearance at a joint session of the Congress of the United States, a trip around the world (twenty-three countries in thirty-eight days), and for Neil Armstrong, another trip halfway around the world again to visit American troops in Vietnam at Christmastime.

Neil Armstrong, Michael Collins, Edwin Aldrin, Jr., written with Gene Farmer and Dora Jane Hamblin (1970), *First on the Moon: A Voyage with Neil Armstrong, Michael Collins, Edwin Aldrin, Jr.* London: Michael Joseph, pp. 9-10.

Questions and points for discussion

1. The writers give three examples of the telegrams sent to the three astronauts in the aftermath of the Moon landing. Suggest reasons why these particular examples were chosen by the writers.
2. According to the writers, what events helped the astronauts to see “the emotions their achievement had evoked in the American people”?
3. Discuss the significance of the three astronauts making a ‘round the world’ trip in which they visited “twenty-three countries in thirty-eight days”, according to the writer.

Source 18

The songwriter, Gil Scott-Heron, articulated the feelings of many poor Americans – especially black Americans - who failed to see the relevance of the vastly expensive space programme to their own lives of deprivation and ill-health in his song/poem, “Whitey on the Moon”. An audio version is currently available at https://www.youtube.com/watch?v=goh2x_G0ct4.

A rat done bit my sister Nell
With Whitey on the moon
Her face and arms began to swell
And Whitey's on the moon

I can't pay no doctor bills
But Whitey's on the moon
Ten years from now I'll be paying still
While Whitey's on the moon

You know, the man just upped my rent last night
Cause Whitey's on the moon
No hot water, no toilets, no lights
But Whitey's on the moon

I wonder why he's uppinn' me
Cause Whitey's on the moon
When I was already givin' him fifty a week
And now Whitey's on the moon

Taxes takin' my whole damn check
The junkies make me a nervous wreck
The price of food is goin' up
And if all that crap wasn't enough
A rat done bit my sister Nell
With Whitey on the moon

Her face and arms began to swell
And Whitey's on the moon

With all that money I made last year
For Whitey on the moon
How come I ain't got no money here?
Hmm, Whitey's on the moon

You know I just about had my fill
Of Whitey on the moon
I think I'll send these doctor bills
Airmail special
(To Whitey on the moon)

Questions and points for discussion

1. How would you describe the overall tone of the song (e.g. respectful, angry, admiring, satirical, serious, light-hearted)? Give reasons for your choice.
2. At what point(s) in the song does Scott Heron make the most direct connection between spending on the Moon programme and the speaker's family's suffering?
3. What is the value for the historian of a perspective such as that given here?

Secondary Source 7

In July, 1969, when President Nixon was hailing the landing on the moon as “the greatest week since the Creation,” the nation’s largest city was suffering a breakdown of its electric power system, its telephone system, and its rail transportation. Like most other urban areas, New York also suffered from poverty, slums, crime, drug addiction, pollution, and congestion. Large sectors of the country’s public school system were crumbling or in chaos, and in 1970 fifteen industrial nations had higher literacy rates than the United States. Health care was steadily deteriorating. In 1967, 41 per cent of the young men called up for the draft were rejected because of physical or educational defects. Although the United States ranked first among nations in per capita health expenditures, in 1970 it ranked twelfth in maternal mortality, fourteenth in infant mortality, and seventeenth in male life expectancy. A massive study by the Institute of Medicine of the National Academy of Sciences found that the infant death rate in New York City during 1968 could probably have been cut by one third if adequate health care had been available.

Lawrence S. Wittner (1974), *Cold War America: From Hiroshima to Watergate*. New York: Praeger Publishers, p. 327.

Questions and points for discussion

1. What problems was New York experiencing at the time of the Moon landing, according to the writer?
2. Does the analysis given by the writer here support or contradict the perspective offered by Gil Scott Heron in Source 18? Give reasons for your answer,
3. Much commentary on the Moon landing presented the United States as a go-ahead, high-achieving country. To what extent should the details provided by the writer here modify the view of the U.S. as a progressive country?

Secondary Source 8

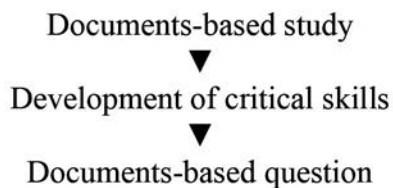
Reaching the moon made earthlings reconsider their terrestrial habitat in a new light and helped to extend the back-to-earth movement beyond communes; indeed going to space created new ecological concerns largely unrelated to space travel itself. People were accustomed to moon-gazing, but looking back from the vantage point of astronauts created something of a paradigm shift. Photographs of earth from its moon offered a new perspective on this planet: a beautiful, small, fragile-looking sphere of blue, alone against the big backdrop of space. In light of these photos, Earth no longer seemed quite so big or inexhaustible. Fresh understandings of the cosmos, our home planet, and our own relationship to them were now possible. A new dawning of environmental consciousness, one that began in the 1960s and reached fruition in the 1970s, was at hand.

Christopher B. Strain (2017), *The Long Sixties: America, 1955-1973*. Chichester: Wiley Blackwell, p. 144.

Questions and points for discussion

1. How did reaching the moon make people on Earth look at their planet in a new light, according to the writer?
2. Explain what the writer means when he refers to ‘something of a paradigm shift’.
3. The writer refers to “A new dawning of environmental consciousness”. Does the movement he refers to still exist today? Explain your answer.

A critical skills exercise



The Leaving Certificate History syllabus states that the documents-based study is “the primary means of developing [students’] skills in working with evidence”. (p.5)

The syllabus also states that, in the examination, the documents-based question “will test candidates’ ability to interrogate, correlate and evaluate a particular body of evidence”. (p.15)

Rationale for card sorts

In a card sort, cards with text (single words, phrases, sentences) are grouped or ranked according to particular criteria. Card sorts are good in helping students to make connections and form judgements. By having the text on cards, students can move them around, group them and, when necessary, change their minds. This approach promotes discussion and collaborative learning.

The intention of the critical skills exercise on the pages that follow is to illustrate, in a practical and active manner, the type of critical skills that the documents-based study is designed to develop. Essentially, the purpose of the exercise is to encourage students to THINK by discussing snippets of evidence and making judgements on their import by deciding whether they support or oppose the given proposition. The PLAY element is important and the exercise should be an engaging one for students. The intention is not to come up with answers that are either ‘right’ or ‘wrong’: much of the value of the exercise is in the process itself. That said, it should be possible to reach consensus in most cases and to clarify misunderstandings – where these arise – in the process.

In literacy development, such approaches can play a pivotal role as students engage together in purposeful reading and discussion of text and are active participants in the learning process.

What is involved in the critical skills exercise

Each group of 4-5 students is given an A4 sheet with the proposition at the top of the page and two columns headed: **Agrees** and **Disagrees**. Each group is also given an envelope containing 8 short documentary extracts – each on its own small strip of paper or cardboard – and the task is to discuss with each other the appropriate column in which to place each extract. When each group has reached its conclusions, the outcome of the exercise is discussed in a whole group setting.

Note: Since some of the sources are primary and others secondary, it may also be helpful to invite students to distinguish between the two types.

Proposition: The Moon landing, 1969, was a great achievement for the American people and for all mankind.

Place each of the secondary source extracts in the appropriate column, depending on whether you think it agrees or disagrees with the above proposition. If the group cannot agree on whether a particular extract agrees or disagrees with the proposition, place it along the dividing line in the middle and wait to hear what other groups have to say about the extract.

Agrees	Disagrees

<p style="text-align: center;"><i>Source A</i></p> <p>This is the greatest week in the history of the world since the Creation, because, as a result of what happened, in this week, the world is bigger infinitely ...</p>	<p style="text-align: center;"><i>Source E</i></p> <p>Many Republicans were critical, as were many scientists, of the public-relations aspects of this technological stunt. So costly in money, so meager in scientific results, so popular with Walter Cronkite and the media generally.</p>
<p style="text-align: center;"><i>Source B</i></p> <p>Each moon trip cost around half a billion dollars. Yet the spacecrafts were so small that only the simplest experiments could be made.</p>	<p style="text-align: center;"><i>Source F</i></p> <p>Sir Edmund Hillary, the New Zealander who in 1953 with Sherpa Tenzing was the first man to climb Mount Everest praised the Apollo-11 moon-walk as “a wonderful achievement. I feel it is one of the greatest occasions for the world.”</p>
<p style="text-align: center;"><i>Source C</i></p> <p>The successful landing of Americans on the moon – and the victory over the Soviets in the space race it represented – was a remarkable triumph of American technology ...</p>	<p style="text-align: center;"><i>Source G</i></p> <p>Cairo: The United Arab Republic called the landing “a triumph for the whole of mankind.”</p>
<p style="text-align: center;"><i>Source D</i></p> <p>You know I just about had my fill Of Whitey on the moon I think I'll send these doctor bills Airmail special To Whitey on the moon</p>	<p style="text-align: center;"><i>Source H</i></p> <p>So there he is at last. Man on the moon. The poor magnificent bungler! He can't even get to the office without undergoing the agonies of the damned, but give him a little metal, a few chemicals, some wire and twenty or thirty billions dollars and vroom! there he is, up on a rock a quarter of a million miles up in the sky.</p>

<p>Source E</p> <p>Stephen E. Ambrose</p> <p><i>Nixon. Volume Two: The Triumph of a Politician, 1962-1972</i></p> <p>p.283</p>	<p>Source A</p> <p>President Richard Nixon</p> <p>Cited in Gene Farmer and Dora Jane Hamblin, <i>First on the Moon</i> (1970)</p> <p>p.363</p>
<p>Source F</p> <p>From a report in</p> <p><i>The Irish Times</i></p> <p>22 July 1969</p>	<p>Source B</p> <p>William L. O'Neill</p> <p><i>Coming Apart: an informal history of America in the 1960s</i> (1971)</p> <p>p.59</p>
<p>Source G</p> <p>From a report in</p> <p><i>The Irish Times</i></p> <p>22 July 1969</p>	<p>Source C</p> <p>William A. Link and Arthur S. Link</p> <p><i>American Epoch. A History of the United States since 1900. Volume II: Affluence and Anxiety, 1940-1992.</i> Seventh Edition (1993).</p> <p>p.602</p>
<p>Source H</p> <p>Russell Baker, U.S. journalist</p> <p><i>The New York Times</i></p> <p>21 July 1969</p>	<p>Source D</p> <p>Gil Scott-Heron, singer-songwriter</p> <p><i>Whitey on the Moon</i> (1970)</p> <p>On the album, <i>Small talk at 125th and Lenox</i></p>

Historians' views about the Moon landing, 1969

Secondary Source A

What compelling reasons produced this decision [to go to the Moon]? Foremost among them was the need to beat Russia. The Soviets had bigger rockets and were doing all the spectacular things first. This was thought to have had effects on American prestige and morale. It certainly depressed Kennedy's. Worse yet, capitalism was made to look bad. After the Bay of Pigs, national, or at least presidential, prestige needed reinforcement all the more. Then too, as national leaders were determined to have booster rockets as strong as Russia's, a reason for them had to be found. The military rockets – Atlas, Minuteman, Polaris, Titan – were quite adequate. Only manned flights justified the building of vastly more powerful ones. Economics played a part too. The military rocket programs were nearing completion, and unemployment would follow if new projects were not devised. The moon race meant additional jobs and profits for the aerospace industry. p.49

William L. O'Neill (1971) *Coming Apart: an informal history of America in the 1960s*. New York: Times Books.

Secondary Source B

President John F. Kennedy at first had doubts about space exploration. He doubted whether man could survive outside the earth's atmosphere. And he thought that the enormous sums of money might be better spent on earth. But his persuasive Vice-President Lyndon B. Johnson was a great space enthusiast. After the Russians had sent Yuri Gagarin into orbit, President Kennedy announced that the United States would aim to land a man on the moon before 1970. When President Johnson came to office, he gave space exploration his strong support.

The moon-landing project did need all the support it could find. For there were great risks and vast expenses. When a fire exploded in 1967 during tests of a spaceship, three of the most experienced astronauts were killed. The costs of preparing for the moon shot came to \$25,000,000,000. But this meant new industries, new products, and employment in new jobs for a third of a million people all over the country.

"We work in a place," boasted someone at the Manned Spacecraft Center in Houston, Texas, "where 13,000 men can feel like Columbus." p.181

Daniel J. Boorstin, with Ruth F. Boorstin (1987) *The Landmark History of the American People. Volume 2. From Appomattox to the Moon* New York: Random House.

Secondary Source C

On July 16, Johnson was present at Cape Kennedy, Florida, for the lift-off of the Apollo XI moon shot. His presence on the occasion highlighted a delicate situation. It had been President Kennedy who had dedicated the nation to the goal of putting a man on the moon before the end of the decade. Many Republicans were critical, as were many scientists, of the public-relations aspects of this technological stunt, so costly in money, so meagre in scientific results, so popular with Walter Cronkite and the media generally. President Johnson had kept the funds flowing into the Apollo program.

And now it was President Nixon who stood to gain the greatest PR benefits. It made the Democrats gnash their teeth. p.283

Stephen E. Ambrose (1989) *Nixon. Volume 2: The Triumph of a Politician, 1962-1972*. New York: Simon and Schuster.

Secondary Source D

Responding to Kennedy's call in May 1961 to land an American on the moon, Congress immediately increased NASA's budget by 61 percent. Between 1961 and 1964, NASA's budget grew from under \$1 billion to \$5.1 billion, while NASA's employees increased in number from 6,000 to 60,000, and civilian space-related employment reached 411,000. This massive deployment of national resources into a crash manned space program soon produced results. Project Mercury's last mission, commanded by the astronaut Gordon Cooper in May 1963, was followed by the more sophisticated Project Gemini, designed to gain the experience and skills necessary for a moon landing. The Gemini program thus involved spacecraft with several crew members; these vehicles could rendezvous with each other, and their crews had the opportunity to emerge from them for "space walks" thousands of miles above the earth.

Project Gemini was followed by Project Apollo in late 1966. Despite a fire which killed the astronauts Virgil Grissom, Edward White, and Roger Chaffee and delayed the first launch of an Apollo craft until October 1968, three astronauts successfully orbited the moon aboard *Apollo 8* on Christmas Day 1968. Further dress rehearsals in the spring of 1969 set the stage for *Apollo 11*, which would carry the first astronaut to the moon. pp.601-602.

William A. Link and Arthur S. Link (1993) *American Epoch: A History of the United States since 1900. Volume II: Affluence and Anxiety, 1940-1992*. New York: McGraw-Hill Inc.

Secondary Source E

"Bring Us Together" was Richard Nixon's campaign slogan, and by his inauguration in January 1969 most Americans desired just that: a time of national healing and unity.

Yet during that year and the next there was only one event that brought us together – the landing on the moon. In July, *Apollo 11* left earth and circled the moon. As lunar module *Eagle* descended, some 123 million Americans, and about a fourth of the people on earth, watched the event on TV. For a moment humanity stopped: stock markets were quiet, juries left courtrooms, classes recessed. Then, with a remarkably good picture broadcast from 250,000 miles, America won the space race: "Houston, Tranquility Base here. The *Eagle* has landed." Shortly thereafter, Neil Armstrong and then Edwin "Buzz" Aldrin, Jr., walked on the lunar surface. They planted an American flag and left a plaque that said, "We came in peace for all mankind."

Unfortunately, that peace and unity lasted only a few days. Conflict emerged again, and by June 1970 a government commission wrote that division in the nation was "as deep as any since the Civil War."

Terry Anderson (1999) *The Sixties*. New York: Longman, p.153

Secondary Source F

A spring 1999 poll of opinion leaders sponsored by leading news organizations in the United States ranked the 100 most significant news events of the twentieth century. The Moon landing came in a very close second to the splitting of the atom and its use during World War II. Some found the process of deciding between these various events difficult. 'It was agonizing,' CNN anchor and senior correspondent Judy Woodruff said of the selection process. Historian Arthur M. Schlesinger, Jr, summarized the position of many opinion leaders. 'The one thing for which this century will be remembered 500 years from now was: This was the century when we began the exploration of space,' he commented. Schlesinger said he looked forward toward a positive future and that prompted him to rank the lunar landing first. 'I put DNA and penicillin and the computer and the microchip in the first 10 because they've transformed civilization. Wars vanish,' Schlesinger said. 'Pearl Harbor will be as remote as the War of the Roses,' he said referring to the English civil war of the fifteenth century.

Roger D. Launius (2006) Interpreting the Moon Landings: Project Apollo and the Historians, *History and Technology*, Volume 22, Number 3, September 2006, pp. 225-255.

Interrogating the historians

Our enquiry has focused on the question:

Why did the United States spend a lot of time and money during the 1960s on the preparations that led to the Moon landing, 1969?

1. (a) Which historians explicitly mention President Kennedy's role in the decision to start preparations for a Moon landing?
(b) Which historian mentions President Kennedy's initial doubts about space travel and his Vice-President's enthusiasm for it?
2. Which historians mention the Cold War rivalry with Russia that was a major factor in the decision to land a man on the Moon?
3. (a) Which historians mention the large amounts of money spent on the preparations for the Moon landing?
(b) Which historian gives most detail on how the large amounts of money were spent in preparing for the Moon landing? Explain your answer.
4. Which historians mention the role played by President Johnson in supporting the preparations for a Moon landing?
5. Which historians mention the accident and loss of life that caused a slight delay to the preparations for a Moon landing?
6. Which historian has most to say about the impact the Moon landing had at the time?
7. (a) Which historians make brief reference to President Nixon in relation to the Moon landing?
(b) What points do these historians make in relation to President Nixon and the Moon landing?
8. (a) Which historian reports the views of a fellow historian, Arthur M. Schlesinger, Jr, on the historical importance of the Moon landing?
(b) How does Arthur M. Schlesinger, Jr, justify his view of the Moon landing as the most significant news event of the twentieth century?

Your conclusions on the enquiry



Our enquiry has looked at the reasons why the United States spent a lot of time and money during the 1960s on the preparations that led to the Moon landing, 1969.

Based on the evidence you have encountered in the course of the enquiry, identify:

- (a) two reasons why the United States began its preparations for a manned Moon landing
- (b) four actions taken by the United States in making plans for a Moon landing during the 1960s
- (c) three ways in which the Moon landing made an important impact

Make your case in a written report, devoting one paragraph to each of the factors identified. In a concluding paragraph, give your judgement – based on the evidence you have studied – in relation to the question: *Why did the United States spend a lot of time and money during the 1960s on the preparations that led to the Moon landing, 1969?*

OR

Now that we have looked at a wide range of evidence on the Moon landing, 1969:

- Explain what you see as the main reason why the United States began preparations for landing a man on the Moon.
- What do you think are the TWO most important actions taken by the United States during the 1960s in making plans for a Moon landing?
- What do you think are the TWO most important ways in which the Moon landing, 1969, made an impact?
- For each of the reasons you give, you must back up your reason with evidence from the primary sources (such as newspaper reports) or secondary sources (such as extracts from the writings of historians) that we have studied.



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