

The
image
that
shared
our
world



EARTHRISE

Discussion Guide



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About the Film

Length: 30 minutes

Earthrise tells the story of the image captured of the Earth from space on Apollo 8 in 1968. Told solely by the Apollo 8 astronauts—Bill Anders, Frank Borman, and Jim Lovell—the film recounts their experiences and explores the beauty, awe, and grandeur of the Earth against the blackness of space.

The Earthrise photograph had an everlasting impact on the astronauts and humanity, offering a powerful perspective that transcended national, political, and religious boundaries. It helped humanity to see our Earth as one ecosystem, kickstarting the environmental movement, and has become one of the most iconic and widely reproduced and distributed images in history. Offering an opportunity to remember this shift in perspective, *Earthrise* compels us to again reflect on the Earth as a shared home at this unprecedented time in history and to consider how we might build on the legacy of the Earthrise photograph, 50 years later.

About the Filmmaker

Emmanuel Vaughan-Lee is an award-winning filmmaker, musician and composer. His work has been featured on *National Geographic*, PBS, *The New York Times*, *The New Yorker*, *The Atlantic*, *Outside Magazine*, exhibited at the Smithsonian and screened at festivals worldwide including Tribeca Film Festival, New York Film Festival, SXSW and many others. He has directed numerous acclaimed films including *Sanctuaries of Silence*, *Marie's Dictionary*, *Isle de Jean Charles*, *Yukon Kings*, *Elemental*, *Barrio de Paz* and *What Would it Look Like?*. Prior to his work in film, Emmanuel performed with some of the biggest names in jazz, as well as released two critically acclaimed records, “Previous Misconceptions” and “Borrowed Time.”



About the Global Oneness Project

The Global Oneness Project believes that stories play a powerful role in education. We bring the world's cultures alive in the classroom using stories as a pedagogical tool for growing minds. Committed to the exploration of cultural, environmental, and social issues, we offer a rich library of free multimedia stories comprised of award-winning films, photo essays, and articles accompanied by companion curriculum for educators, all for free.

We aim to connect, through stories, the local human experience to global meta-level issues, such as climate change, water scarcity, food insecurity, poverty, endangered cultures, migration, and sustainability. Through featuring individuals and communities impacted by these issues, our stories and lesson plans provide opportunities for students to examine universal themes which include the following: identity, diversity, hope, resilience, imagination, adversity, empathy, love, responsibility and our common humanity. Our lessons facilitate the development of students' critical thinking, inquiry, empathy, and listening skills.

The Global Oneness Project's films and lessons have been featured on *National Geographic*, PBS, *The Atlantic*, *The New York Times*, *The New Yorker*, TED Ed, and the Smithsonian, among others. Our educational resources are being used in diverse settings, from public to independent schools, nationally and globally.

www.globalonenessproject.org

[twitter/@goproject](https://twitter.com/goproject)

Letter from Cleary Vaughan-Lee

Executive Director of the Global Oneness Project

Dear Educator,

At the Global Oneness Project, we are excited to bring you this discussion guide, a companion to the film *Earthrise*. The film compels us to reflect on the impact of the Earthrise photograph, 50 years later, and the perspective it offers of our Earth as a shared home.

I've had the pleasure of screening *Earthrise* in educational settings, from elementary schools to university classrooms, community centers and science museums. Students are excited to share their own relationship to the Earth; they enthusiastically identify the significance of the Earthrise photograph as a symbol of interconnectedness.

As students define what it means to be a global citizen in today's world, these conversations are imperative. How can the symbol of the Earthrise photograph return to our collective consciousness 50 years later at a time of planetary crisis? The film *Earthrise* and the companion discussion guide get to the heart of this question and inspire discussions and reflections centered on the power of perspective and the spirit of space exploration. I hope this film and guide will be a source of inspiration and challenge to your students during a time in history where we need to value the recognition of our common humanity across borders and care for the planet we call home.

All the best,
Cleary

Using this Guide

What's Inside

This discussion guide offers suggestions for exploring the 30-minute film

Earthrise in instructional contexts, including schools and classrooms. It is designed for educators working with middle school, high school or college-level students, as well as for non-traditional educational institutions, including museums and communities. The guide can also be adapted for elementary use. The film and guide may be used in a variety of courses and subjects, including art, English language arts, ecology, engineering, environmental science, geography, history, literature, media studies, leadership, philosophy, social science, sociology, and space exploration.

This guide uses the power of perspective as an overarching theme to analyze the film, which tells the story of the iconic *Earthrise* photograph. This historically significant photograph was taken by the astronauts of the Apollo 8 mission—the first human beings to see the Earth from space.

The guide begins with a description of the Apollo missions, the historical context in which they took place, and brief biographies of the three astronauts. A filmmaker's statement is also included, written by the director of *Earthrise*, Emmanuel Vaughan-Lee. This statement explains the inspiration and intention behind the film.

The guide goes on to explore three important themes raised throughout the film: 1) **bearing witness**; 2) **exploration**; 3) **reverence for the environment**. These themes represent various powers of perspective—from the Apollo 8 astronauts, the world-at-large both in 1968 and today, and insights that students can draw upon as they consider their values in a shifting world.

The discussion guide provides questions for dialogue, reflective writing activities, conversation cards, as well as action and research projects to help students explore each theme. Students will be encouraged to think about their own place in the world as well as the ways in which the *Earthrise* photograph has influenced environmental, cultural, and social movements throughout history.



The Apollo 8 space vehicle is launched from Kennedy Space Center, at 7:51 a.m. (EST), Dec. 21, 1968.

Putting the Film in Context

History

Background information about the Apollo 8 mission and the Earthrise photograph

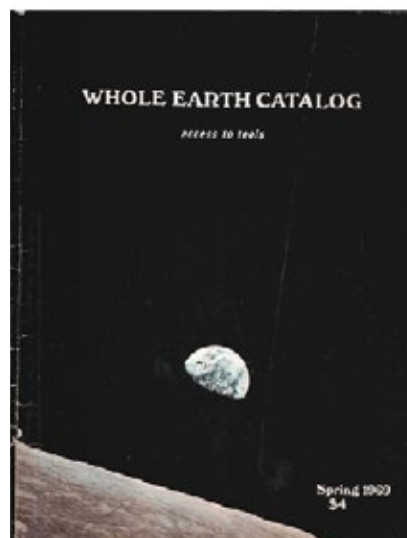
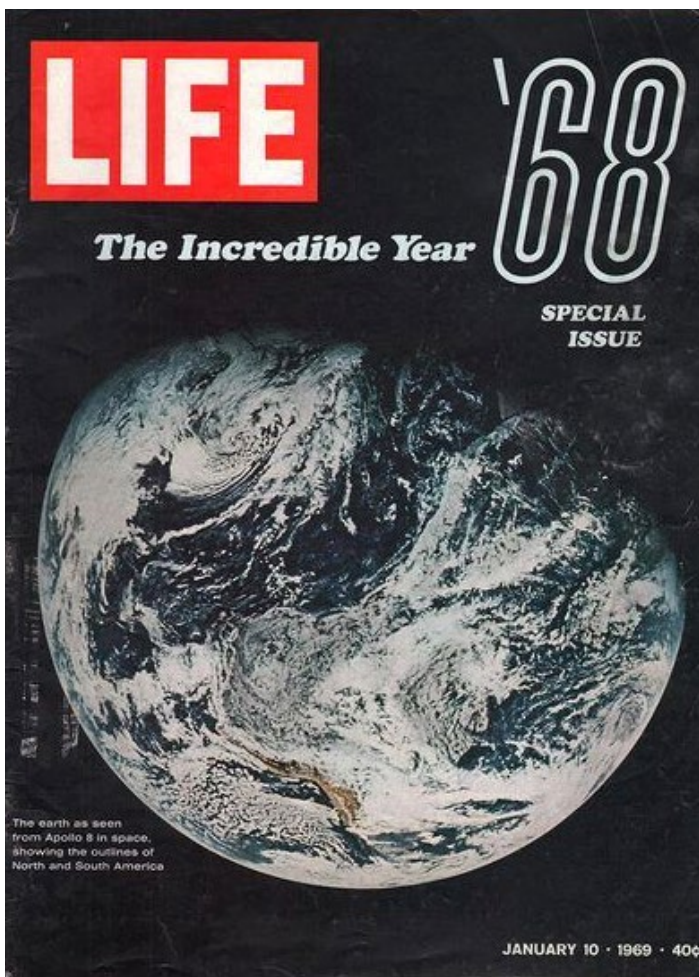
On December 21, 1968 Apollo 8 launched from the Kennedy Space Center in Merritt Island, Florida. The three-man crew—Bill Anders, Frank Borman and James Lovell—were part of an elite group of astronauts NASA had assembled to help fulfill John F. Kennedy’s goal to land a man on the moon before the end of the 1960’s.

Their mission was to travel to and orbit the moon, testing the viability of a future moon landing. They were the first men to leave Earth’s orbit behind, venturing 240,000 miles farther than anyone before them. Instructed by NASA to take pictures of the surface of the moon, capturing photographs of Earth was not a priority. NASA was focused on getting to the moon; everything else was secondary. During their lunar orbit, the crew emerged from the dark side of the moon to see the Earth rising before them. They quickly scrambled to capture the image. Bill Anders took one photograph in black and white and then quickly captured one in color. This was the first color photograph taken of the Earth from the moon and became known as *Earthrise*.

Within days, the photograph was published on the front pages of newspapers and magazines around the world. It became one of the most well-known photographs in history. The astronauts were praised as heroes—great adventurers returning from man’s most daring mission with an important artifact for humanity.

The iconic Earthrise photograph shifted the vision of space exploration from one that leaves Earth behind, to one that marvels in the rare magnificence and beauty of our home planet. Anders explained: “I don’t know who said it, maybe all of us said, ‘Oh my God. Look at that!’”¹ Borman later described the vision of the Earth as “the most beautiful, heart-catching sight of my life, one that sent a torrent of nostalgia, of sheer homesickness, surging through me.”²

The photograph of the Earth as a beautiful “blue marble” ushered in a collective awareness of the Earth as a whole— transcending borders and boundaries, even humanity itself, and came to be used by many to instill a sense of wonder, awe, and stewardship toward the planet. It was a natural inspiration for the creation of Earth Day, the Environmental Protection Agency, and for the environmental movement.³ It also supported a growing need to recognize the unity and equality of all humanity beyond racial or national boundaries. Not surprisingly, *LIFE Magazine* included Earthrise in the “100 photographs that changed the world.”



Earth as seen from Apollo 8 featured in *Life Magazine*. Earthrise on the cover of the *Whole Earth Catalog*, an American counterculture magazine between 1968 and 1972. Apollo 8 Earthrise commemorative stamp. First Earth Day poster designed by Robert Leydenfrost.

The Times

Background information depicting 1968, culturally and historically

The year the first human beings left Earth's orbit was a significant year in the history of the United States and the world. The late 1960s were a time of profound change in the American landscape. The post-WWII idealism, which had defined the American ethos in the 1950s, had given way to the counterculture revolution of the 60s. The hippie movement and its message of free love was growing steadily along with the women's liberation movement and civil rights movement. Boundaries —between genders, races, classes— were starting to be challenged and broken down.

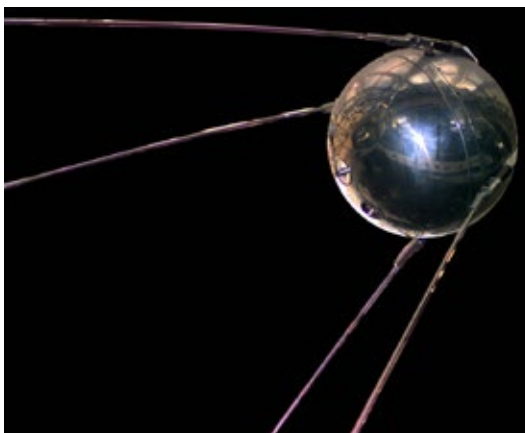
In 1968, two of the country's great heroes and civil rights advocates were assassinated. The Reverend Martin Luther King, Jr. was assassinated on his hotel balcony in Memphis, Tennessee on April 4th at the age of 39. The murder sent shockwaves throughout the United States and the entire civil rights movement, which galvanized many to action. Riots broke out in 100 cities across the country in response to the death and to the injustices faced by minorities. Two months later, presidential candidate and civil rights advocate Robert F. Kennedy—brother to former president John F. Kennedy—was shot in Los Angeles, California, after a campaign speech. Despite these events, the civil rights movement continued to gain momentum.

Meanwhile, the U.S. forces in the Vietnam War suffered a surprise attack by North Vietnamese known as the Tet Offensive, in which North Vietnamese and Viet Cong forces attacked almost every major city in South Vietnam, including Saigon. A suicide squad of 19 Vietnamese overtook the American Embassy in Saigon for six days. The violence, which was televised, seemed to mark a turning point in public opinion about the war. According to U.S. News, "The scope of the attack stunned the White House, the media, and the American people."⁴ The international peace movement grew in opposition to this violence.

This was also a time of the Cold War between communist Russia and the United States, a time of political tensions between the two countries that lasted roughly from 1949-1991. Russia was seen as a political and military threat as well as a serious competitor in the space race. In 1957, the Russians beat the Americans and launched Sputnik, the first satellite to orbit the Earth.



Sputnik—which is Russian for satellite or “fellow traveller”—was launched by a rocket in Kazakhstan and orbited Earth every ninety-six minutes. Eleven years later, Apollo 8 would successfully orbit the moon.



Start of Tet Offensive (Creative Commons). Vietnam protest (National Archives). A fire at Caroline and Eden during the 1968 riot in Baltimore. (William H. Mortimer, *Baltimore Sun*). A replica of Sputnik 1, the first artificial satellite in the world to be put into outer space (NASA).

The Astronauts

Frank Borman

Commander Frank Borman was born in 1928 in Gary, Indiana. Frank pursued a love of flight in his youth through building and flying model airplanes. Eager to fly real planes, he attended West Point followed by the U.S. Air Force and ultimately participated in the NASA space program in 1962 where he led Apollo 8 in the orbit of the moon. Borman retired from NASA in 1970 and became an executive at Eastern Airlines. Between his West Point graduation and joining the Air Force, he married Susan Bigbee; they have two sons. Borman lives near Billings, Montana, where he restores and flies antique airplanes.

James Lovell

Jim Lovell was born in 1928 in Cleveland, Ohio, and was raised by his mother after his father died when he was five years old. He had an early love of flying and rocketry and built model airplanes. He was an Eagle Scout and attended the University of Wisconsin in Madison before the U.S. Naval Academy from which he graduated in 1952. He joined NASA in 1962; his first space flight was as a pilot on Gemini 7 in December 1966 with Frank Borman as his command pilot. He was commander of the famed Apollo 13 mission to the moon—his fourth and final mission, which was aborted on April 13, 1970, due to an explosion in one of the ship's oxygen tanks.

Lovell married his high school sweetheart, Marilyn, and had four children. After the Apollo 8 mission, he stayed with NASA, becoming one of only three men to travel to the moon twice. After retiring from the space program in 1973, he worked as a business executive. In a 1969 interview with *Life Magazine*, Lovell expressed the deep sense of awe he felt on his lunar trips. Referring to lines of a poem sent to him by his high school English teacher before the journey on Apollo 8, he says: "I guess they say what I wish I were articulate enough to say about my experience up there: 'I've trod the high untrodden sanctity of space, put out my hand, and felt the face of God.'"⁵



Frank Borman, James Lovell and William Anders, (top to bottom) from the film, *Earthrise*.

William Anders

Bill Anders was born in 1933 into a Navy family. His father was a Navy Lieutenant in Hong Kong. An active Boy Scout, Anders attained the second highest rank of “Life Scout.” After graduating from the U.S. Naval Academy, he joined the Air Force to serve as a fighter pilot. Anders received an advanced degree in nuclear engineering from the Air Force Institute of Technology. His commitment to service as well as to live a meaningful life inspired him to write to his wife Valerie while working overseas. “We must define our purpose before we’re sidelined by things that give only a false and temporary sense of happiness and success,” he wrote.⁶ In 1963, Anders applied to be part of NASA’s space program and was accepted. He trained as a lunar module pilot and logged more than 6,000 hours of flying time, including his work on Apollo 8. He remained in civil service for a total of 26 years before joining the business world. He has four sons and two daughters.



William Anders, James Lovell, and Frank Borman, (left to right) are seen inside Apollo Boilerplate during water egress training in the Gulf of Mexico (NASA).

Filmmaker's Statement

by Emmanuel Vaughan-Lee, director of *Earthrise*

I've always loved the Earth photography captured during the Apollo missions and for as long as I can remember, I found the Earthrise image to be particularly poignant. It stirred up primal emotions within me. In all the tellings I watched or read of Apollo 8—and there are many—I wanted to experience more. It seemed like Apollo 8 was so often treated as a footnote to Apollo 11 and the first landing on the moon. The first trip to the moon and the capturing of the Earthrise photograph was the seminal moment for me in the Apollo missions. I wanted to know the story behind the photograph, to know what it was like for the first human beings to see and experience Earth from space.

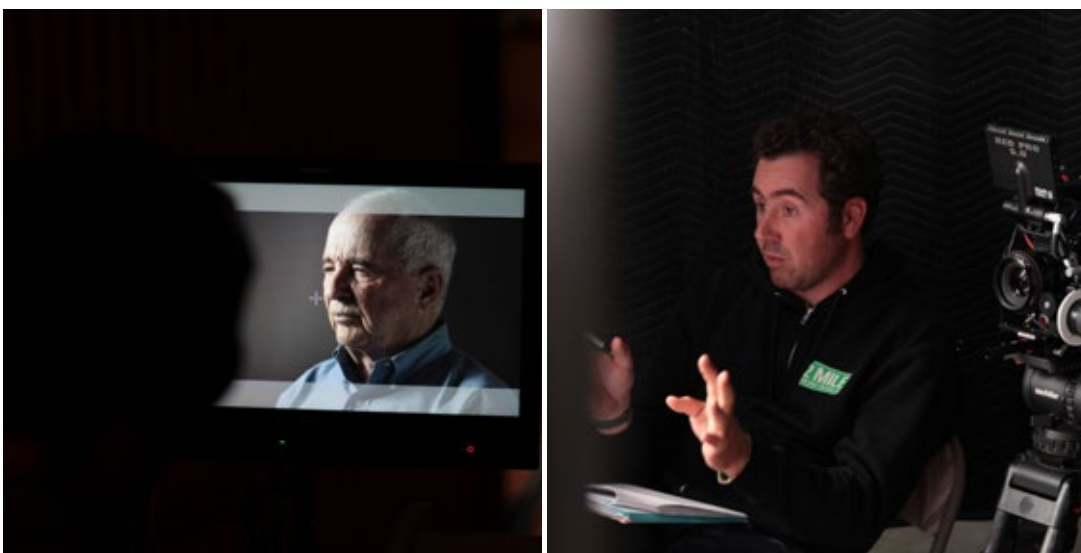
I wondered what role this image could offer us 50 years later as we face intense political, social, and ecological upheaval. Could it become a symbol of remembrance that unites us? Could it act as a catalyst, enabling us to see our planet as one ecosystem? These questions inspired me to make the film.

I conducted long, multi-day interviews with the Apollo 8 astronauts. All these years later, they still remembered every detail, vividly describing the mission and their experience looking back at the Earth. I had approached the interviews with all sorts of ideas about the profound insights they would share, the epiphanies they must have had and how it had forever changed their lives. And while they offered these insights during the interviews, they also provided something much simpler, something much more human that touched me the most. It was as if seeing the Earth from the moon had awakened a primordial feeling within each of them. Home.



My editor, Adam Loftin, and I spent countless hours reviewing archive footage and photography from the Apollo missions. The tactile quality of the 16mm footage and 70mm photography imparted a quality I felt was lacking from the crisp digital images from satellites and the international space station I'd become accustomed to seeing. I could almost feel the human presence behind the lens, a sense of emotion that was imparted into the footage itself. In crafting the story, I wanted to create that human connection to the Earth I felt within the footage and the astronauts' experiences. I wanted to explore how to feel and witness the Earth as our home the way they had. I wanted to share the awe and beauty they had experienced, to remember the power of this image they shared with the world.

At screenings of the film these past few months, people always ask, "What is your hope for the film? What do you want it to accomplish?" It seems that watching the film stirs up big questions for people in the same way the photograph did when it was first shared 50 years ago. I find myself reaching for the words of poet Archibald Macleish who Frank Borman turned to when he felt his own words were inadequate: "To see the Earth as it truly is, small and blue and beautiful in that eternal silence where it floats, is to see ourselves as riders on the Earth together." I hope that we remember that we are together here, at home on this "...bright loveliness in the eternal cold."



Take 1! James Lovell, Frank Borman, William Anders and Emmanuel Vaughan-Lee, (left to right) while filming *Earthrise*.

Earthrise in the Classroom

Previewing the Film

Length: 30 minutes

We recommend that you preview the film before showing it to your class. This will help you determine how best to connect it to the purposes of your class/course and curriculum. Prior to sharing the film in your classroom, select questions, activities, and reflections from throughout the guide that best fit your instructional goals.

Driving Question

How does the Earthrise photograph provide a context for what it means to be a global citizen?

Previewing the Themes

We recommend that you review the themes. One or more themes could be chosen to connect to the purposes of your class and curriculum and/or you may have students choose a theme to explore.

Driving Question

How does the Earthrise photograph provide a context for what it means to be a global citizen?






Main Theme

Power of Perspective

In 1968, three astronauts embarked on the Apollo 8 mission and witnessed the Earth as it had never been seen before.

The first color photograph taken beyond Earth's orbit was later titled *Earthrise*. By examining the story of the Earthrise photograph—which includes in-depth interviews with the astronauts and archival footage from NASA—a larger story is revealed.

 The Earthrise photo taken around 10:40 a.m. Houston time on the morning of Dec. 24, 1968 (Bill Anders).

Perspective can be defined as a point of view, including attitudes or beliefs, toward an idea or issue.

Each person has an individual perspective due to unique life experiences. Collective cultural influences also shape community, national, or world perspectives. The most amazing thing about perspective is that it can shift and change; individuals and communities can expand their understanding and experience of life.

How can perspectives change? Sometimes it's as simple as "putting oneself in another person's shoes" or traveling to a different country. Other times perspective changes through profound experiences like falling in love or losing something that had great meaning. When a perspective changes, we recognize the power it had all along—to shape, define, and even to limit, our experience.

In 1968, the Apollo 8 astronauts completed the first manned orbit around the moon, becoming the first humans to see the Earth from space. This new perspective, shared with the world through the Earthrise photograph, radically changed humanity's view of itself and our relationships with each other and the planet. The visible lack of national boundaries and seeing the Earth as a beautiful complete whole in the vastness of space, provided a window into the beauty, unity, and vulnerability of life on Earth.

As students view the film, they will reflect on the story of the Earthrise photograph and the perspective it provided to the Apollo 8 astronauts and to the world. Students will also consider the photograph from the perspective of today—50 years later, exploring the relevance of its point of view in light of global issues. Educators can use the film as an opportunity to explore the power of perspective with students and to discuss the importance of being open to new ways of thinking and points of view.

Additional Themes

In addition to the overarching theme of perspective, the following three themes are explored throughout this discussion guide.

Bearing Witness

As the three astronauts in the film demonstrate, the simple act of seeing or witnessing something profound had powerful consequences, both in their own lives and in the lives of the people with whom their experience was shared.

Exploration

Human beings have always explored the world, and themselves, through traveling beyond what's familiar, and facing the dangers and challenges of the unknown.

Reverence for the Environment

The Apollo 8 astronauts left the Earth to conduct the first lunar orbit. The Earthrise photograph, taken on this mission, spearheaded the environmental movement, creating a renewed reverence for the planet.

Opening Exercise

Before your class views *Earthrise*, consider doing this exercise to introduce the main theme of the film.

Designed to work as an introduction to the film, the activities listed in this section can be used to introduce the concept of perspective and the Earthrise photograph to students. If you opt not to do the opening exercise, [go to page 30](#) to prepare to view the film with your class. Photographs are powerful tools to convey ideas, and the Earthrise photograph is one of the most iconic and reproduced images in history. By hypothesizing about the ideas communicated in the Earthrise photograph, and thinking about the decisions that photographers make when capturing and sharing images, students will begin to understand how perspective can change based on a single image, and further, how images can be used to shape perceptions and ways of thinking about the world. For further reading on the idea of perspective as reflected in the film, consult the section on perspective on pages 19-20 of this guide.



You'll need the following 6 items for this opening exercise:

[Earthrise image rotated \(p. 27\)](#)

[Earthrise image \(p. 28\)](#)

[Black and white image taken in 1966 by the Lunar Orbiter \(p. 29\)](#)

[Image analysis worksheet \(google doc\)](#)

[Image analysis key \(google doc\)](#)

[Visible Thinking Routine from Project Zero \(website\)](#)



(Left to right) Black and white image of earth taken in 1966 by the Lunar Orbiter 1 (NASA). Original Earthrise photo shot vertically (Bill Anders). Earthrise photo rotated 90° (Bill Anders).

Image Analysis

Part I

Begin the lesson by displaying the Earthrise image so that all students can see it. Share copies of the [Image Analysis worksheet](#). (Possible answers are included in the [Image Analysis Key](#)) Allow students time to respond to the following questions, which are part of a Visible Thinking Routine from Project Zero, designed to encourage exploration of a work of art:

1. What do you see?
2. What do you think about that?
3. What does it make you wonder?

Encourage students to take their time and list all of the ideas that come to mind. Then, have students share their responses with the class. You might consider recording answers to the third question to come back to during discussion after watching the film.

Part II

After exploring the photograph together as a class, tell students that the Earthrise image was actually taken vertically, with the Earth rising not over the moonscape, but across it. Ask them to compare the two images on their worksheet and think about the questions posed there:

1. Why do you think NASA turned the photograph on its side?
2. Would the photo have the same impact if you saw the Earth floating to the side of the moon?

Part III

Next, show the black and white image taken in 1966 by the Lunar Orbiter I and have students complete part III of the worksheet.

1. Why do you think this image didn't have as much of an impact on the American public?
2. Compare this photograph to the Earthrise image. While in the spacecraft, astronaut Bill Anders quickly made the switch to color film when he spotted the Earth rising over the moon. Why do you think he did that?

Discussion

Build off of the comparison of the three images by sharing that “perspective” often includes seeing something in relation to something else. Read the following quote from Bill Anders to students: “The fact that the lunar horizon was so ugly and stark, that amplified the beauty of the Earth. We were all awestruck by the difference—the beauty of the Earth and its color against the blackness of space.” (*Earthrise*, 15:10)

Ask students:

1. Can you imagine how the Earthrise image might have changed the perspective of the astronauts who saw it?
2. How might have the Earthrise image impacted their way of thinking about the planet and its inhabitants?
3. What do you think they believe was the message of the image?
4. Can you think of other photographs that have changed the way we think about the world?

Point out that photographs have the power to do the following:

1. Shine light on world issues
2. Provoke action
3. Challenge core beliefs
4. Promote responsibility
5. Evoke memories
6. Provide new perspectives

Can students think of examples of other iconic images that do these things?

Part IV

Next, ask students to complete Part IV of the worksheet, the reflection. After students have had some time to write, ask students to volunteer some of their responses.

1. What choices were made when capturing and sharing the Earthrise image?
2. How do those choices impact the message that the photo is sending?
3. What kinds of modifications do you make to images before posting them on social media? How do the choices you make impact the stories that your photographs tell?
4. Given that we see so many images daily in the media, do you think photographs lose their power? Can images still impact one's perspective or the way we think about the world? Why or why not? What are some examples?

Close by revisiting the “think” and “wonder” portions from Part I of the initial image analysis.

1. What questions do students have about the image?
2. Has it shifted their own perspective?
3. Why might it be important for people to shift their perspectives and be open to new ideas?
4. Watch the film.

Earthrise Photo Rotated



Earthrise photo rotated 90° (Bill Anders).

Original Earthrise Photo



Original Earthrise photo shot vertically (Bill Anders).

Lunar Orbitor Earth Image



Black and white image of earth taken in 1966 by the Lunar Orbiter 1 (NASA).



Watch the Film

Prepare to watch *Earthrise*, 30 minutes in length. We recommend making the room as dark as possible and turning up the sound to be loud and audible.



High-oblique view of the moon's surface showing Earth rising above the lunar horizon, as photographed from the Apollo 8 spacecraft as it orbited the moon (NASA).

Themes Recording Sheet

Invite students to take notes on the film while they watch it, indicating events, phrases, and images that correspond to each theme. If you have decided to focus on a particular theme(s), communicate this with students at this time.

Power of Perspective New points of view	Bearing Witness Being present in unexpected ways	Exploration Traveling beyond what's familiar	Reverence for the Environment Admiration and respect for the planet

Conversation Cards

The conversation cards are organized around the following three themes—bearing witness, exploration, and reverence for the environment. These themes provide three different ways for students to engage with the film's content.



Think cards encourage reflection on a quote or topic from the film.



Ask cards invite questioning and dialogue.



Act cards direct students toward taking specific actions in their community.

The conversation cards can be used to deepen student engagement in the following ways:

- As pre-film warm-ups to introduce the topics and themes
- As catalysts for post-film discussions
- As writing prompts for personal reflections or essays
- To spark ideas, action or class projects

[Download the Conversation Cards \(PDF\).](#)

[Use these cards in Google Slides.](#)

Facilitating the Discussion

After viewing the film, ask students to share their general reactions. Then use the discussion questions included to explore each theme more deeply. Educators may use all of the themes in their classrooms, or they may want to pick and choose themes and questions that are most relevant for their students and their curriculum.

To promote a thoughtful dialogue, we invite you to think of discussion strategies, reflections, and other suggested activities as components of engaging students' own "power of perspective." As such, the educator's role is to support and guide students' quest for knowledge and truth rather than impose a particular viewpoint. To this end, you might consider:

- Making it clear that the questions are meant to be open-ended, with no right or wrong answers. The purpose is to help students expand their understanding of the topic.
- Using different discussion formats to engage students in different ways and to deepen their thinking. For example, you might have students discuss questions as a whole class, or in pairs or small groups, and then report out to the class. You might also have students reflect on a question individually before discussing it in a group.
- Providing reflective silence. After asking a question, give students five to ten seconds to think before responding. This quiet time allows students to reflect and often stimulates deeper insights. "Silent discussions" can also be a useful tool in some classrooms. You might consider posing a question on a large piece of paper for students to share their thoughts on as a type of "graffiti wall" or having students respond to prompts written on separate papers and passing them between partners or a small group, thus allowing the opportunity to respond to each other's thoughts in a quiet and orderly space.

- Inviting a variety of viewpoints by encouraging different students to participate. Rather than relying on the same volunteers to answer every question, encourage quiet students to speak up, or have those students lead small group discussions.
- Modeling “thinking out loud” to create an atmosphere in which students feel comfortable taking intellectual risks, asking questions, and admitting when they do not know something.
- After the discussion, encourage participants to think more deeply about the film with the reflection and action suggestions. Depending on your objectives, you may also use the suggestions as small group discussion topics, individual essay prompts, journal entries, or test items.
- Inviting small Socratic Circle/Seminar discussions.

Framework for Discussion Themes



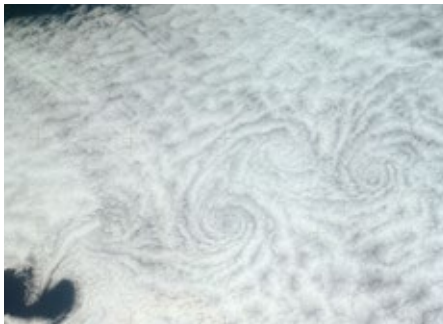
Three important themes are raised throughout the film:

Bearing witness

Exploration

Reverence for the environment

These themes represent various powers of perspective—from the Apollo 8 astronauts, the world-at-large both in 1968 and today, and insights that students can draw upon as they consider their values in a shifting world. Each theme can be the basis for specific discussion questions and reflective writing prompts.



A striking view from the Apollo 8 spacecraft showing nearly the entire Western Hemisphere (NASA).



Theme

Bearing Witness

Bearing witness can be defined as a way of seeing and being with people or events that emphasize awareness and presence without necessarily including action, conceptualization, or even understanding. In *Earthrise*, the three astronauts witnessed the Earth in this way. They were struck by its beauty, its fragility, its loneliness in the vastness of the universe. For example, Frank Borman describes his experience of bearing witness: “I happened to glance out of one of the still-clear windows just at the moment the Earth appeared over the lunar horizon. It was the most beautiful, heart-catching sight of my life, one that sent a torrent of nostalgia, of sheer homesickness surging through me.”² The witnessing of the Earth had a deep impact on each astronaut, though this impact did not result in the need to immediately act, respond, or analyze their experience. When we bear witness to something—a person, thing, or event—we are present in unexpected ways.

The astronauts were able to capture this moment on film, and shared it with the world, inviting others into the same profound experience. The witnessing of the Earth from above, through the Earthrise photograph, opened a doorway into a collective awareness or consciousness. American journalist Bill Moyers, in his Power of Myth series, interviewed writer Joseph Campbell who described Earthrise as a mythic image. He said, “When you see the earth from the moon, you don’t see any divisions there of nations or states. This might be the symbol, really, for the new mythology to come.”⁷ This kind of seeing— a planetary perspective—could be an important shift as we consider the future and our relationship to our planet.

Photography, literature, and other forms of art often facilitate witnessing, as they can open a doorway to a new experience or point of view of another human being. Through sharing our experiences, we can share meaning.

Bearing witness can be solemn, often tied to tragedy or sadness, yet can also be tied to moments of beauty, within our natural world and each other. It is about acknowledging, noticing, and being present with something outside of one’s self. As we bear witness to other people and share our stories, we expand our understanding of life and our connections to each other. Bearing witness is often a starting point for action and responsibility, as individuals reflect on their roles in broader cultural, environmental, and social contexts.

Discussion

Lead a classroom discussion which explores the theme Bearing Witness throughout the film, using the questions below as a guide. Timestamps are included when quotes from the film are referenced.

1. Define bearing witness in your own terms.
2. The Apollo 8 astronauts witnessed the Earth rising above the lunar landscape. How might bearing witness to something reveal or expose a bigger truth? Describe what this looked like for the Apollo 8 astronauts.

3. Apollo 8 commander and astronaut Frank Borman explained in his autobiography: “I happened to glance out of one of the still-clear windows just at the moment the Earth appeared over the lunar horizon. It was the most beautiful, heart-catching sight of my life, one that sent a torrent of nostalgia, of sheer homesickness surging through me.”² Why might Borman have felt so homesick and nostalgic at the sight of the Earth? What factors, particular to this trip and this vision, might have influenced his feelings?
4. Lovell said about the mission, “[It] makes me feel a little disappointed. We did something that ended up showing the Earth and its people exactly how we existed where we are, that we were really here on Earth...[just] like we were on [a] spacecraft having to work closely together to accomplish a mission, down here we seem not able to do that.” (*Earthrise*, 27:39) How do you think his act of bearing witness—seeing the Earth from space—impacted his perspective? Why do you think he was disappointed? How did he hope it would impact the perspective of others?
5. Director of *Earthrise*, Emmanuel Vaughan-Lee said, “In crafting the story, I wanted to create that human connection to the Earth I felt when interviewing the astronauts about their experiences...I wondered what role this image could offer us fifty years later as we face intense political, social, and ecological upheaval. Could it become a symbol of remembrance that unites us? Could it act as a catalyst, enabling us to see our planet as one ecosystem?” Do you think the *Earthrise* photograph could be a symbol of remembrance and unity? Why or why not?
6. The role of photography in bearing witness to global issues is amplified when shared online. The fascination and obsession with taking photographs and posting on social media can sometimes detract from our enjoyment of experiences. What do you think: does easy access to photography help us bear witness or does it inhibit being present in the moment? Describe an example for each perspective.

7. Court-watchers, human rights observers, and organizations like Amnesty International use bearing witness to improve accountability and fight injustice. Similarly, in recent years, citizens around the world have used their cell phones to record crimes or to make the actions of people, including police officers and government officials, transparent. Do you think is this a powerful way to create change? Why or why not?

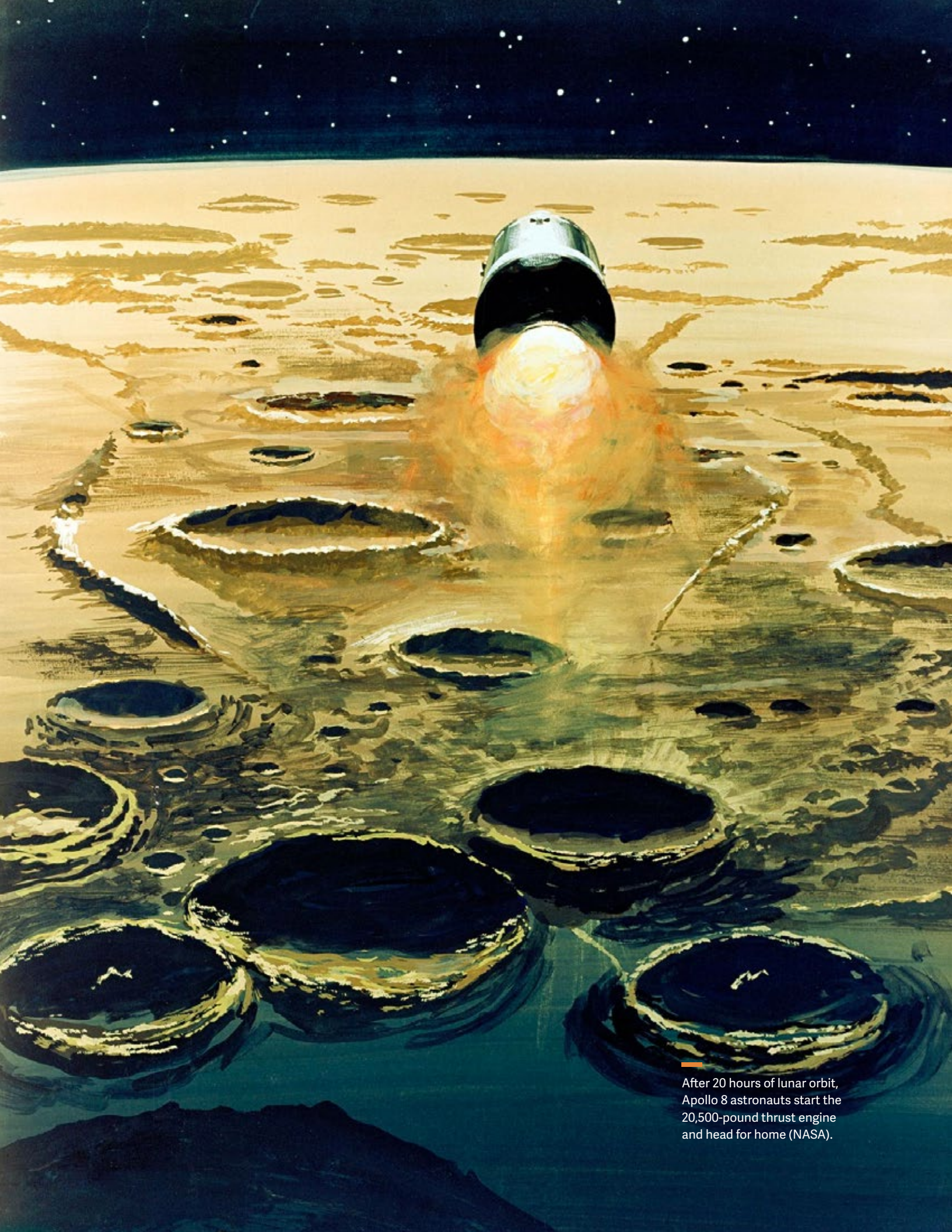
Reflection

Give students one of the following reflective writing prompts to demonstrate their understanding of the film *Earthrise*. (Note for educators: Just as quotes from a book or text are used to prove an analytical thought, students can use the film to justify their reasoning.) Length: 2-3 paragraphs.

1. Author John Updike wrote, “Suddenly summoned to witness something great and horrendous, we keep fighting not to reduce it to our own smallness.”⁸ Describe a time/situation in your life where you bore witness to something you felt was powerful. What are the positive and negative implications of bearing witness? How might bearing witness lead towards positive change for the greater good of society?
2. Images have always played a fundamental role in our world. *National Geographic* photographer Steve McCurry said, “The photograph is an undeniably powerful medium. Free from the constraints of language, and harnessing the unique qualities of a single moment frozen in time.”⁹ Select two iconic images. What do each of these two photographs, and the *Earthrise* photograph, represent to society? To yourself? How might iconic images shine light on world issues and challenge your core beliefs?

" I happened to glance out of one of the still-clear windows just at the moment the Earth appeared over the lunar horizon. It was the most beautiful, heart-catching sight of my life, one that sent a torrent of nostalgia, of sheer homesickness surging through me."

FRANK BORMAN



After 20 hours of lunar orbit, Apollo 8 astronauts start the 20,500-pound thrust engine and head for home (NASA).

Theme

Exploration

The Apollo 8 mission—which took place from December 21-27, 1968—was the first manned lunar orbit. During the mission, the crew completed 10 lunar orbits. The first live TV broadcast from space took place during the mission.

Human beings have always explored the world, and themselves, through traveling beyond what's familiar, facing the dangers and challenges of the unknown. *National Geographic* described the Apollo mission as “Mankind’s Greatest Adventure.”

Historically, our world was smaller, often defined by our families and by community boundaries. Hunters venturing out into the wilderness or the sea in search of game, or migrants leaving home in search of work and a new life, were early explorers. With the invention of modern transportation—cars, planes, trains, and even spacecraft—adventurers could strike out easily into new territory. Throughout time, as humans venture further afield, they carry with them objects, traditions, and ways of thinking. In addition, when they return from their travels, they bring with them an exposure to new climates, cultures, materials, and philosophies.

During the 1950s, and 60s, the “unknown” was clear. Both America and the U.S.S.R. focused their scientific energy on exploring space—beginning with the Soviet launch of Sputnik in 1957. Space represented a new frontier in a rapidly globalizing world—a new area to wonder about, venture to, and study. When the members of the Apollo 8 mission captured the Earthrise image, they experienced both space and a view of the Earth no other humans had yet experienced. Anders stated: “We were all awestruck by the beauty of the Earth and its color against the blackness of space.” (*Earthrise*, 15:27) Lovell described that the photo gave a contrast. He said, “...here are people looking from a different planet. Looking back at what is our home.” (*Earthrise*, 16:14) The photograph brought this new knowledge and understanding to the world at large, exemplifying the impact of exploration on not just the traveler, but on all of us.

In this way, travel allows us to know more about the world beyond our immediate surroundings. Likewise, exploring unfamiliar places allows us to learn about our own selves—what risks are we willing to take? What makes us uncomfortable? What strengths do we draw on when faced with the unknown? When speaking to Congress after the Apollo 8 mission, Borman said, “Exploration really is the essence of the human spirit, and to pause, to falter, to turn our back on the quest for knowledge is to ‘perish.’” Today, knowledge is easily accessible without travel via the push of a button. But does acquiring knowledge in this way have as great of an impact? How do we experience the vulnerability needed for real discovery and exploration if we can use our cell phones to tell us where we are at any time? Borman suggests that it is venturing into the unknown that is integral to the human spirit.

Discussion

Lead a discussion which considers the theme of Exploration. Timestamps are included when quotes from the film are referenced.

1. Define in your own terms the meaning of exploration. Why do you think *National Geographic* described the mission as “Mankind’s Greatest Adventure”?

2. As Lovell said, from space, “You don’t see cities, you don’t see boundaries, you don’t see countries, you don’t see people...” (*Earthrise*, 2:03) What did he see from that perspective? Why might this vision of Earth, only accessible because of space exploration, be important?
3. “The vast loneliness is awe-inspiring and it makes you realize just what you have back there on Earth. The Earth from here is a grand oasis in the big vastness of space,” said Lovell.¹⁰ This echoes the popular phrase, “you don’t know what you have till it’s gone.” Do you agree with this—that losing something or leaving it behind can help you appreciate it more? Why did this happen to Lovell? How can the exploration of new boundaries and places help us appreciate or gain new perspectives about our homes?
4. In 1948, British astronomer Fred Hoyle predicted that a vision of the Earth from beyond its atmosphere would have a significant impact on the global community. He said “Once a photograph of the Earth, taken from outside, is available, we shall, in an emotional sense, acquire an additional dimension...Once let the sheer isolation of the Earth become plain to every man, whatever his nationality or creed, and a new idea as powerful as any in history will be let loose.”¹¹ What do you think he meant by a “new idea”? How did the astronauts express it? How did *Earthrise*, the photograph, express it?
5. “Before the flight I was a Catholic and had communion from my old parish priest. But I must say that my faith was somewhat undercut as I looked back at the tiny Earth and I imagined if the Earth was the size of a golf ball at one lunar distance, at ten lunar distances it was down to a bb, at a hundred lunar distances it wasn’t going anywhere—it’s like a grain of sand. I got to thinking—is that really the center of the universe?” said Anders. (*Earthrise*, 17:37) In what specific way do you think traveling away from Earth impacted Anders’s worldview and his religious values? How might the insights gained through space exploration coexist with ethical, religious, and philosophical views? Do you think this is important? Why or why not?

6. Mythologist and author Joseph Campbell, in a 1979 interview in *The New York Times*, described the meaning of a symbol. He said, “As Thomas Merton wrote, a symbol contains a structure that awakens our consciousness to a new awareness of the inner meaning of life and reality itself. Through symbols we enter emotionally into contact with our deepest selves, with each other... a word that is to be understood as a symbol.”¹² Describe how the Earthrise photograph is a symbol. What might it signify for you personally? What might it signify for humanity?
7. “This was the first time we had actually escaped from the Earth. And at that time I suddenly realized everything in life was relative. When you’re in a room your world revolves around those walls. When you’re outside, then your world revolves around what your eyes can see. Suddenly when you’re in a spacecraft you think in terms of oceans, of islands,” said Lovell. (*Earthrise*, 5:00) What might thinking in terms of oceans and islands have been like? How might you experience a perspective-changing shift like this due to the exploration of new places or boundaries within yourself?
8. Exploration can help us appreciate similarities as well as open our eyes to differences that exist between various people and cultures. In the film, Borman quoted the following passage, “Riders on the Earth” from poet Archibald Macleish: “To see the Earth as it truly is, small and blue and beautiful in that eternal silence where it floats, is to see ourselves as riders on the earth together—brothers on that bright loveliness in the eternal cold. Brothers who know now that they are truly brothers.” (*Earthrise*, 25:11) Why do you think the experience of viewing Earth in this way led the astronauts to believe in a sense of shared humanity? What did this view make them realize about humanity?
9. Consider this particular space endeavor in the context of its time: ongoing Cold War tensions and worldwide upheaval during 1968. Borman had high hopes for the impact of this and similar missions: “I think that eventually through the space program and through space exploration—away from the Earth and away from the totally nationalistic interests we may develop a closer relationship here among the people.” (*Earthrise*, 26:27) Do you think the space program was effective in 1968 in building a more

cooperative relationship among nations or did it simply fuel nationalism and competition? How might space exploration build relationships among nations? Do you think the Earthrise photograph had as much of an impact as the Apollo 8 astronauts seemed to have hoped? Why or why not? Lovell was concerned that it had not: "I don't think the space program has brought as yet as worldly a view—interlocking view—to humankind that I had hoped." (*Earthrise*, 26:57) Why do you think this might be?

10. Each of the astronauts had very different motives going into the mission. Using the quotes below, what kind of awareness did each one hope to gain through space travel? What do you hope to gain from your own travels in life?
 - A. Frank Borman said, "I was there mainly because of the Cold War—the Apollo program was a battle in the Cold War. That's why it was funded. That's why it was started, and of course it had a lot of other virtues, but it was a battle in the Cold War, and we won. That was my main interest. ... I didn't go into the NASA program to pick up rocks or to go the moon or anything else. I went in there because I was a military officer and that was the next notch in my profession."¹³
 - B. Jim Lovell had his own motivations. He had a deep interest in the mystery and beauty of space. "The vast loneliness up here at the moon is awe inspiring, and it makes you realize what you have back there on Earth. The Earth from here is a grand oasis in the big vastness of space."¹⁰
 - C. William Anders explained, "When I was a kid, I was an explorer scout. And even before then, always interested in exploration; read books about Lewis and Clark and John Wesley Powell and the climbing of this mountain or that... I was always willing to go... see what was on the other side of the mountain. And so Apollo, in general, represented a massive opportunity to explore. And my main motivation was exploration. It was not so much the flying or the patriotism. Those were big elements but the main thing was the exploration."¹³

Reflection

Give students one of the following reflective writing prompts to demonstrate their understanding of the film *Earthrise*. (Note for educators: Just as quotes from a book or text are used to prove an analytical thought, students use the film to justify their reasoning.) Length: 2-3 paragraphs

1. Borman said, “Exploration really is the essence of the human spirit, and to pause, to falter, to turn our back on the quest for knowledge is to ‘perish’.” What do you think Borman means by “essence of the human spirit”? How might exploration impact more than just the person who explores? How might it impact an entire culture? Do you think it is possible it might impact all of humanity and our collective understanding of the world? Why or why not?
2. “The most emotional part of the trip was the homecoming,” said Borman. (*Earthrise*, 22:00) Read the following passage from the poem “Little Gidding” by poet T.S. Eliot.

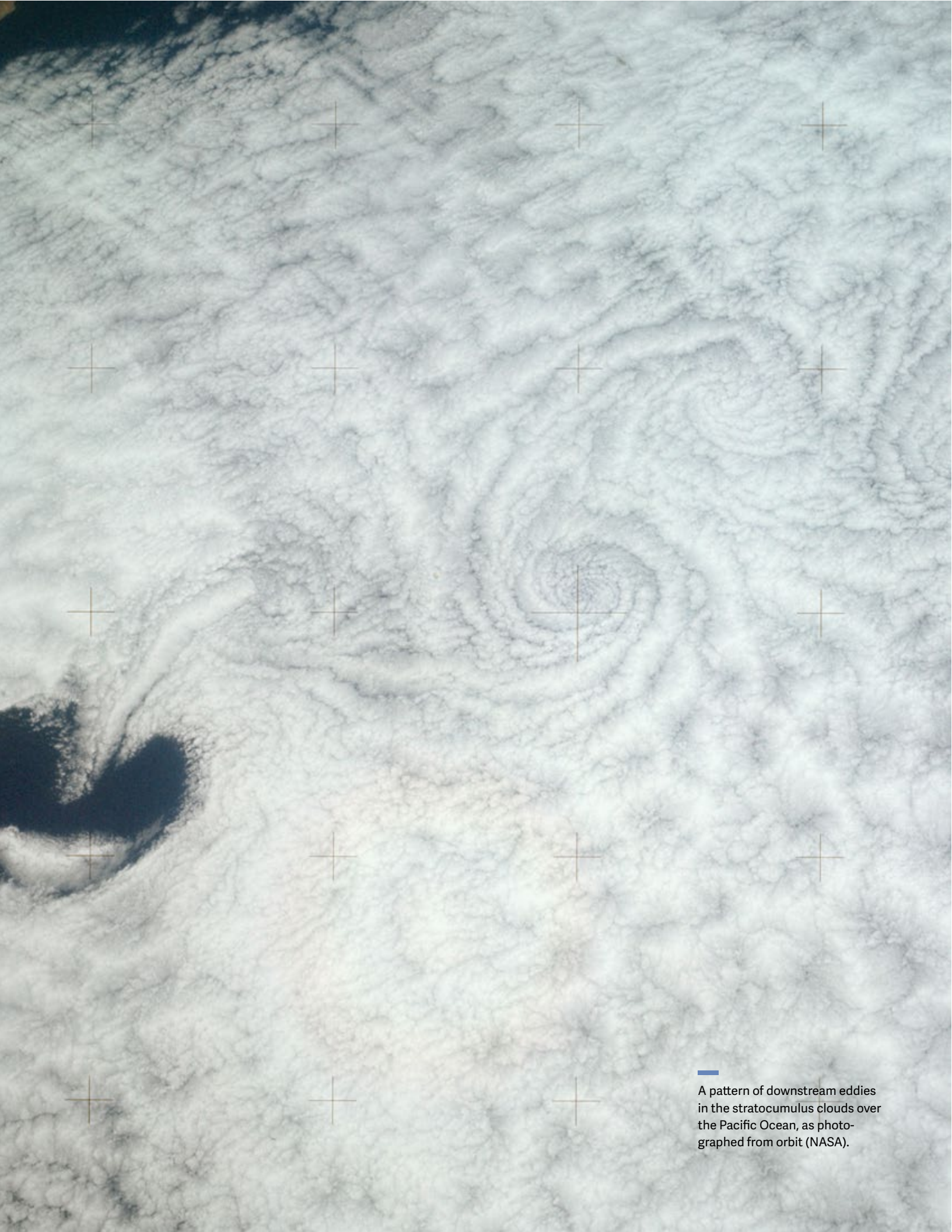
*We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.*

Describe the comparisons between Eliot’s passage and Borman’s comment. How do you think Borman experienced the Earth for the first time when he returned home?

3. Carl Sagan wrote that because “science is inseparable from the rest of the human endeavor, it cannot be discussed without making contact, sometimes glancing, sometimes head-on, with a number of social, political, religious, and philosophical issues.”¹⁴ What do you think of Sagan’s thought? Consider the impacts of science and engineering on society’s quest for truth and new ideas. In what ways does technology help? In what ways might it act as a barrier?



The Apollo 8 capsule is seen being hoisted aboard the recovery carrier, USS Yorktown after its successful splashdown (NASA).



A pattern of downstream eddies in the stratocumulus clouds over the Pacific Ocean, as photographed from orbit (NASA).

Theme

Reverence for the Environment

The word “revere” can be defined as having a deep respect or admiration for something. Reverence for life is a fundamental experience of being human—to be in awe of life and all its forms of expression. When we hold our environment and natural world with reverence, we are often inspired toward conscious, ethical, and moral decision-making about how to live on our planet. This could include a commitment to do no harm, to live sustainably, and to take action towards protecting the planet’s oceans, forests, and species.

The astronauts of Apollo 8 left Earth to learn about the moon, but returned to Earth with a renewed reverence for the beautiful blue marble we call home. Astronaut Bill Anders summarized his feelings about the trip: “We came here to explore the moon, and the most important thing is that we discovered the Earth.”¹⁵

For the first time in human history the Earthrise photograph offered a new way to see the Earth. Astronaut Frank Borman said that “everything we held dear” was on that planet. The astronauts were struck by how the vast emptiness of space accentuated the beauty and vulnerability of Earth. They acknowledged that “you don’t see cities, you don’t see boundaries” on Earth from space. Instead, the planet appears as one entity, one entire community of life, one ecosystem. Earthrise became a powerful symbol of interconnection and inspired the environmental and ecology movements. The term ecology, derived from the Greek word *oikos*, or “home”, is a branch of science concerned with the interrelationship of organisms and their environments. The image was also an inspiration for the creation of Earth Day and the Environmental Protection Agency.³ In 1970, five days after the Apollo 13 return, the first Earth Day took place and remains on calendars today, symbolizing environmentalism, sustainability, and ecological justice. It is estimated that over 1 billion people participate in Earth Day activities each year.¹⁶

Nature photographer Galen Rowell declared the Earthrise image as “the most influential environmental photograph ever taken.” Viewing the Earth from space allowed the astronauts and the world to recognize, honor, and revere the Earth as home to all living species.

Discussion

Lead a discussion which explores the theme Reverence for the Environment throughout the film. Timestamps are included when quotes from the film are referenced.

1. Define reverence for the environment in your own terms. Why might reverence for the environment be a necessary beginning point for a change in perspective?
2. “The one overwhelming emotion that we all carried with us is the fact that we really do all exist on one small globe. When you get out 40,000 miles, it really isn’t a very large Earth.” (*Earthrise*: 24:06) The astronauts had two consistent and contrasting responses to seeing the tiny Earth from space. The first response was how small and insignificant the Earth is in contrast to the vastness of outer space and the second was a sense of love and awe at Earth’s beauty and importance as our only home. These feelings might seem opposed to each other. Do you think they are? How might they relate to each other, if at all?
3. “Lovell was overwhelmed by the smallness of Earth, home to three and half billion people (in 1968) who, from this vantage point, all wanted the same things—a family to love, food to eat, a roof over their heads, children to kiss. From this distance, he could scarcely comprehend the fragility of Earth’s atmosphere, a layer no thicker than the skin on an apple, the only thing that protected those lives, and life itself,” wrote Robert Kurson in *Rocket Men*. What message does this send?
4. The Apollo 8 astronauts were asked if the mission had changed them. Borman said that the experience “amplified” a feeling he had for many years, after his experience of orbiting the Earth for two weeks on a Gemini mission. On Earth, he said, “the boundaries that we have are really artificial ones.” How might this view, of Earth’s interdependence, contribute towards supporting an environmental ethic?
5. Author and environmentalist Wendell Berry wrote, “The care of the Earth is our most ancient and most worthy, and after all our most pleasing responsibility. To cherish what remains of it and to foster its renewal is our only hope.” Describe some ways people can foster renewal and cherish our planet.

6. In 2018, the United Nations Intergovernmental Panel on Climate Change (IPCC) released a report on the serious impacts of global warming. The report warns that warming must be kept at a maximum of 1.5C, and going beyond, the globe will see an increase in droughts, floods, and poverty. A member of the panel said, “It’s a line in the sand and what is says to our species is that this is the moment and we must act now.”¹⁷ What aspects of human behavior do you think have prevented society from moving forward to more sustainable models of living on the planet? How might the symbol of the Earthrise photograph galvanize people into action? What actions are you interested to take? Why?
7. Director of *Earthrise*, Emmanuel Vaughan-Lee, described what inspired him to make the film. He said, “I wondered what role this image could offer us 50 years later as we face intense political, social, and ecological upheaval. Could it become a symbol of remembrance that unites us? Could it act as a catalyst, enabling us to see our planet as one ecosystem?” What do you think? What does the film offers us 50 years later during “ecological upheaval”?
8. Define in your own terms what it means to be a global citizen. In what way is the Earthrise photograph a symbol for what it means to be a global citizen?

Reflection

Give students one of the following reflective writing prompts to demonstrate their understanding of the film *Earthrise*. (Note for educators: Just as quotes from a book or text are used to prove an analytical thought, students use the film to justify their reasoning.) Length: 2-3 paragraphs

1. In 1968, ecologist and philosopher Garrett Hardin wrote about an idea he called “the tragedy of the commons,” implying that humans will overuse resources for personal gain if given the chance. He writes, “Each man is locked into a system that compels him to increase his herd without limit—in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons.”¹⁸ How does the *Earthrise* photograph help convey the need to regulate the commons (our shared resources) before the commons is lost?
2. Since 1968, Earth’s population has roughly doubled from 3.4 billion to over 7 billion in 2018. Edgar Mitchell, Apollo 14 astronaut, said, “beneath the blue and white atmosphere there was a growing chaos...that population and conscienceless technology were growing rapidly way out of control.”² What do you think Mitchell means by “conscienceless technology”? Describe some ways in which we can use technology to help humans strengthen our resolve to work together towards solutions on Earth.
3. The film *Earthrise* premiered online on The New York Times Op-Docs. One viewer commented, “I wonder whether it takes such a voyage to produce a permanent perspectival shift in humans. I wonder what national and global politics would be like if every political representative had to take such a voyage before assuming a governing role.” What do you think about this comment? What if environmental decisions were made by people who took a voyage into space? Describe the pros and cons.

Taking Action

The Apollo 8 astronauts shared the Earthrise photograph with the world-at-large which inspired reverence, wonder, and action regarding our natural world. Students will document the places they live and their relationship to our changing planet. The **#RememberEarth campaign** is an opportunity for students to consider this question, share their perspectives, and explore the perspectives of others. Student multimedia can document multiple perspectives of our Earth, including our interconnectedness.

To participate in **#RememberEarth**, students can respond to one of the following prompts using photography or video:

1. What is your relationship to our planet?
2. How are we all interconnected?
3. In what way is your community protecting the environment?
4. How can we change our perspective to see our planet as one home?

Consider how one could use visual images to answer these questions. Images do not have to be of the natural world, but should help to express the human relationship with the environment. Students can turn the camera on themselves or interview family, friends, or community members. Videos may use music or narration to support and clarify your response. Videos should be less than one minute in length.

Responses can be shared on social media using the hashtag **#RememberEarth**.

To further their ability to act at the local level, direct students to do one of the following:

1. Research examples of organizations or individuals who bore witness to a social, cultural, or environmental cause. What issues are they involved with? Why is it important for members of these organizations to bear witness? Suggested organizations to research include Amnesty International, Greenpeace, Witness, Copwatch, or Sea Shepherd. Share your findings and your chosen organization with your classmates and school community via a poster, blogpost, or brochure.
2. If you look at the world around you, you may notice that it is a truly complex ecosystem in which each human being plays a significant role. As a young global citizen, what role might you play for the future of our planet? Research small actions that you can take to impact the environment and choose one to implement at your school or home. How can you share these ideas with a larger audience? Create a public service campaign that shares your “small action” with a larger audience.
3. Create a timeline of the space race and of the environmental movement of the 1960s and 1970s. Have students evaluate the impact of the Earthrise photograph on the environmental movement. What kind of effect did it have?

Connecting *Earthrise* to the Sustainable Development Goals (SDGs)

The United Nations established 17 Sustainable Development Goals (SDGs) for the world to address by 2030.

One of the goals is Climate Action (SDG #13). Targets for this goal include integrating climate change measures into national policies, strategies, and planning. Another is improving education to raise awareness and mitigate climate change. Describe what you can do to hold your national government accountable for climate change measures. What can you do to improve education in your community, state, or country to raise awareness about climate action and improve people's commitment to sustainable practices?

SUSTAINABLE DEVELOPMENT GOALS



Standards

Common Core English Language Arts. SL.9-10.5 and SL.11-12.5. Make use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understandings of findings, reasoning, and evidence and to add interest.

Common Core English Language Arts. SL.11-12.1.c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.

Common Core English Language Arts. SL.9-10.1 and SL.11-12.1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 [or 11-12] topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

College, Career, and Civic Life (C3) Framework for Social Studies.

D2.Geo.2.9-12. Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions and their political, cultural, and economic dynamics.

College, Career, and Civic Life (C3) Framework for Social Studies.

D2.Psy.2.9-12. Investigate human behavior from biological, cognitive, and sociocultural perspectives.

College, Career, and Civic Life (C3) Framework for Social Studies

Standards. D2.His.12.9-12. Use questions generated about multiple historical sources to pursue further inquiry and investigate additional sources.

National Standards for History. 9.1C.3. Assess the significance of research and scientific breakthroughs in promoting the U.S. space program.

National Standards for History. 9.2E.2. Analyze interconnections between space exploration and developments since the 1950s in scientific research, agricultural productivity, consumer culture, intelligence gathering, and other aspects of contemporary life.

Benchmarks in Science Literacy. 3A/M3. Engineers, architects, and others who engage in design and technology use scientific knowledge to solve practical problems. They also usually have to take human values and limitations into account.

Next Generation Science Standards. HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

Resources

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<https://www.nasa.gov/feature/50-years-ago-apollo-8-rolls-out-to-the-pad>

Martin Collins, “Earth Day and Spaceflight.” Smithsonian National Air and Space Museum, April 21, 2017.

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Andrew C. Revkin, “Another Enthralling ‘Earthrise’ View of the Home Planet.” The New York Times, December 18, 2015.

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“1968: The Year that Transformed the Nation.” USA Today, November 15, 2018.

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Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space* (New York: Random House, 1997).

Frank Borman with Robert J. Serling, *Countdown: An Autobiography* (New York: William Morrow, Silver Arrow Books, 1988).

Frank White, *The Overview Effect—Space Exploration and Human Evolution* (New York: Houghton and Mifflin Co., 1987).

Jim Lovell and Jeffrey Kluger, *Lost Moon: The Perilous Voyage of Apollo 13* (New York: Houghton Mifflin, 1994).

Robert Kurson, *Rocket Men: The Daring Odyssey of Apollo 8 and the Astronauts*

Who Made Man's First Journey to the Moon (Random House, 2018).

Robert Poole, *Earthrise: How Man First Saw the Earth* (New Haven: Yale University Press, 2008).

Ron Schick and Julia Van Haaften, *The View From Space: American Astronaut Photography 1962-1972* (Clarkson N. Potter, Inc., 1988).

Thomas Berry, *Dream of the Earth* (San Francisco: Sierra Club, 1988).

Videos

(Earthrise Recreation from NASA) NASA Goddard, "NASA | Earthrise: The 45th Anniversary," YouTube Video, 6:53, Dec 20, 2013. <https://www.youtube.com/watch?v=dE-vOscpiNc>

Chris Hadfield, "How Space Travels Expands Your Mind." Big Think, March 23, 2018. <https://bigthink.com/videos/chris-hadfield-how-space-travel-expands-your-mind>

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Earthrise from Lunar Orbiter 1.
https://loirp.arc.nasa.gov/loirp_gallery/

"The Apollo Missions." NASA, October 12, 2018.
https://www.nasa.gov/mission_pages/apollo/missions/index.html

Spacelog.org
<http://apollo8.spacelog.org/03:13:46:23/#log-line-308783>
PBS Learning Media & WGBH: Bringing the Universe to America's

Classrooms. <https://ca.pbslearningmedia.org/collection/universe/>

Project Zero at Harvard Graduate School of Education.

<http://www.pz.harvard.edu>

UN Sustainable Development Goals Knowledge Platform.

<https://sustainabledevelopment.un.org/>

Podcasts

(Smithsonian Air & Space Museum Podcast) AirSpace.

<https://airandspace.si.edu/learn/airspace-podcast/episodes>

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Although it was past 2 a.m., a crew of more than 2,000 people were on hand at Ellington Air Force Base to welcome the members of the Apollo 8 crew back home. (NASA)

What Educators are Saying

"Iconic as the Earthrise imagery is, I have no recollection of seeing these images in my training as a wildlife biologist or science educator. We must continue to educate in the science fields by integrating philosophical, ethical, and sociological perspectives. My classes recently calculated our carbon/resource footprint and came to the conclusion that we need 3-5 Earths to support the entire planet with our consumption patterns. The Earthrise photograph provides a stunning recognition that we only have one!"

Jeremey Wilder

High school science teacher in Michigan.

"This film can be an anchor text from which students develop the concept of exploration. Earthrise provides opportunities for students to discuss our shared humanity, which is an essential beginning point to respecting the individual."

F. Margret Atkinson

Middle school English language arts teacher in Louisiana.

"This film has both historic relevancy. I can see myself using it to encourage students to think about the value of the space program and how it speaks to the American Spirit and how we are often looking forward in our progress. This film begs to be used as an exploration of what it means to be a global citizen, how students can learn from people not like themselves, and what actions students can take in their everyday lives to make the world a better place."

Michael Dunn

Former high school history teacher, career counselor for AIM Academy, Pennsylvania.

"This film would provide great insight into just how fragile our existence is on Earth and the delicate balance of life that must be maintained to preserve it as a place for human existence. Earthrise can be used to push my students to THINK about their impact on the Earth, to consider the borders that exist between the humans beings that live here and how we can must work together in the future as global citizens to sustain our very existence."

Kim Preshoff

High school science teacher in New York.

“The Earthrise film helps illuminate how the concept of Earth as a shared precious resource was in some ways a new perspective during an era known for Cold War competition, mass consumption, and societal upheaval. The film urges students to consider how America was changing in the 1960s, and how the Earthrise photograph’s publication impacted American society and global culture. There are so many concrete curricular connections to make—to the rising environmental movement, to increasing globalization, and to space innovation; but there is also the central idea that traveling allows us to see things differently. What could be more important right now than the idea of seeking out new perspectives and ideas?”

Kate Harris

High school history teacher in Pennsylvania.

"Science and technological advances never happen in a vacuum. They are motivated by human needs and eventually cause human beings to explore new dimensions of our fields of knowledge and of our personal experience. Through the deeply personal experience of the astronauts of Apollo 8, Earthrise offers us a powerful tool to contextualize the technological and engineering achievements of the Moon program into a human framework. It challenges us to reflect on the use that we make of such achievements reminding us that the applications of science and technology are always a product of human choices and as such each one of us has a right and a duty to contribute to shape those choices."

Irene Porro Ph.D.

Physicist and Director of the Christa Corrigan McAuliffe Center for Integrated Science Learning in Massachusetts.

"The Apollo 8 crew presented a gift to all of humankind in the photograph Earthrise, and this film captures the incredible emotional qualities that accompany the image. Perspective is a powerful tool for learning, growing, and inspiring others. And this photo forces us to recognize that we are one planet, one global community. Borman, Anders, and Lovell bring raw human sentiments into the picture by sharing that everything dear to them exists on that one beautiful planet. As a result, their hopes to encourage all of humanity to be better and do better as one global family definitely deserves attention these 50 years later. As global citizens today, do we care for our planet, for each other, for ourselves? The data that drives the Sustainable Development Goals adopted by all of the United Nations member states tells us that we have a lot of work to do —locally and globally. I believe our youth studying this film truly can make a difference."

Emily Schell, Ph.D.

Executive Director for the California Global Education Project.



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