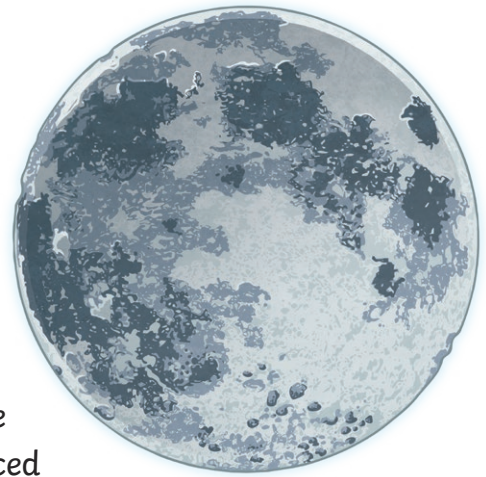


Apollo 13

Blast-Off

On April 11th 1970, Apollo 13 blasted off from the Kennedy Space Centre in Florida, USA. There were three crew members onboard: James Lovell, Fred Haise and Jack Swigert. Lovell had already been to the moon. He was the most experienced of all the crew.

Worryingly, the mission had bad luck from the beginning. One of the original pilots was replaced only two days before blast-off. This was because he had been exposed to a virus. NASA couldn't risk any of the crew getting ill in space.

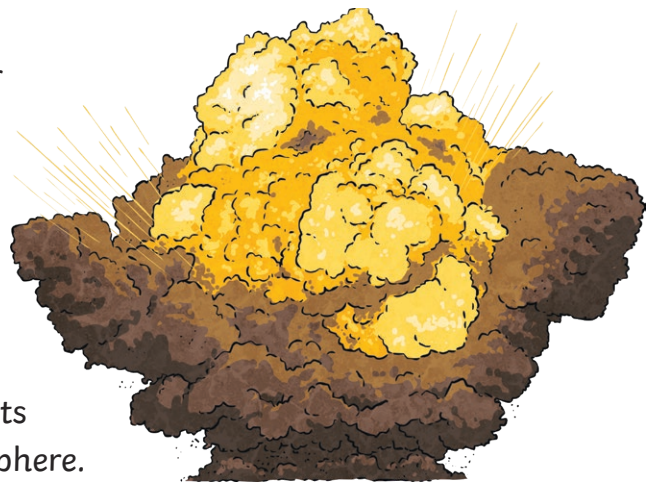


The Apollo 13 was made up of two different spacecraft, the Odyssey and the Aquarius, connected by a tunnel. The Odyssey was the main spacecraft and contained the crew's living quarters. The Aquarius was much smaller – it was meant for landing on the moon. Apollo 13's mission was to investigate the surface of the moon by taking photographs and getting samples

of the moon's surface. The crew were also going to film videos for television. At first, everything went well.

An Explosion

On the evening of 13th April, disaster struck. An explosion rocked the spacecraft. Swigert reported the explosion to mission control in Houston, exclaiming, "Houston, we've had a problem here." An oxygen tank had exploded and caused serious damage. From the window, the astronauts could see gas escaping into the atmosphere.



This gas was their precious oxygen.

Apollo 13 was in great danger. The crew were stranded in space with a damaged spacecraft. It would take a huge amount of teamwork and bravery to get the crew safely home. Thinking quickly, the crew moved into the smaller Aquarius. It became their lifeboat. The Odyssey was shut down to try to save as much power as possible for the journey home to Earth.

Life Onboard

Life in space was very difficult for the crew. All power was turned off, except for the essential systems, which made the spacecraft extremely cold. The astronauts put on extra clothes and some strapped into their lunar boots, which they would have worn on the moon. Water and food were carefully rationed. Some food became impossible to eat because it was so cold. The crew were cramped and couldn't sleep.

The astronauts felt anxious. They were supported by mission control, who were working hard to rescue them. Everyone had to work as a team, despite the distance between them.

To return to Earth, the crew had to return to Odyssey. They hoped there was enough power left to get them home. As the crew detached the Odyssey and floated back down to Earth, they could see the damage from the explosion. They had been lucky to survive.

Returning Home

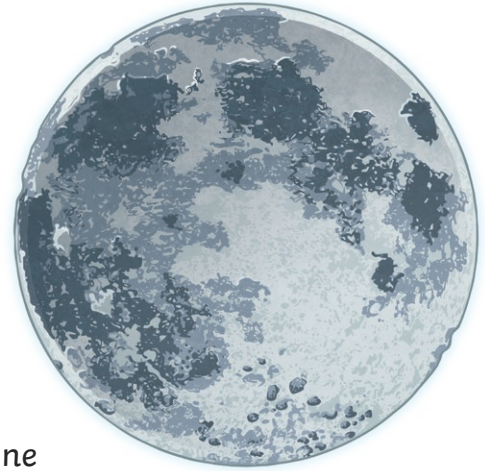
On 17th April, the Apollo 13 crew splashed into the Pacific Ocean. The US Navy was waiting for the crew to land, picking up the exhausted men from the spacecraft by helicopter. Millions of people watched on television as they landed. The whole world celebrated the crew's safe return.



Apollo 13

Blast-Off

On April 11th 1970, three astronauts climbed aboard the Apollo 13. They blasted off from the Kennedy Space Centre in Florida, USA. The crew was made up of Commander James Lovell and pilots Fred Haise and Jack Swigert. Lovell had already been to the moon and was the most experienced onboard.



The mission suffered bad luck from the beginning. One of the original pilots was replaced by Swigert just two days before blast-off. This was because he had been exposed to a virus. NASA

decided it was too big a risk for a virus to go into space, so Swigert had only a couple of days to be ready for the mission.



Odyssey and Aquarius

The Apollo 13 was made up of two different spacecraft, the Odyssey and the Aquarius. They were connected to each other by a tunnel. Odyssey was where the crew lived. The Aquarius was designed

for landing on the moon. At first, the Apollo 13 mission went perfectly. Their mission was to explore the surface of the moon by taking photographs and getting samples of the moon's surface. The crew were also going to film videos in space for television.

An Explosion

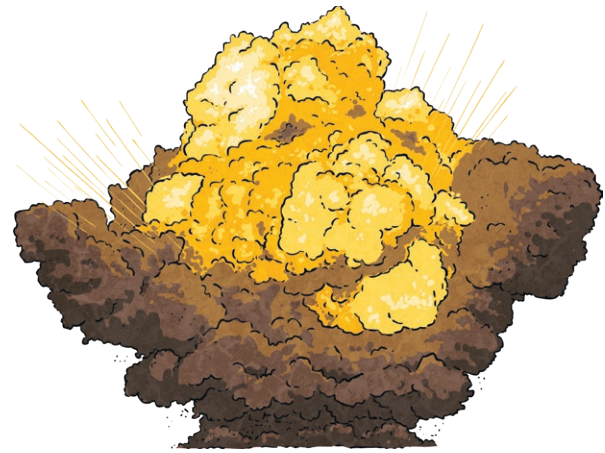
On the evening of 13th April, disaster struck. An explosion rocked the spacecraft. Swigert reported the explosion to mission control in Houston. He exclaimed, "Houston, we've had a problem here."

An oxygen tank had exploded and caused serious damage. From the window, the astronauts could see oxygen escaping into the atmosphere.

The crew were stranded in space with a damaged spacecraft.

It would take a huge amount of teamwork and bravery to get the crew safely home.

The crew moved into the much smaller Aquarius. It became their lifeboat. The Odyssey was shut down to save as much power as possible for the journey home to Earth.



Difficult Conditions Onboard

Life in space was very difficult for the crew. All power was turned off, except for the radio to mission control. This made the space craft extremely cold and caused condensation.

Water and food were strictly rationed, as some food had become inedible due to the cold. The cramped conditions made it hard for the crew to sleep as they couldn't lie down. The crew were anxious but they felt supported by mission control. Mission control worked hard to rescue them. When the spacecraft had too much carbon dioxide, mission control helped. Over the radio, they helped the crew build a special filter using plastic bags, cardboard and a sock. Mission control also had to help the crew stay on the right path back to Earth. If their calculations were wrong, the Apollo 13 would never return home.

Returning Home

To return to Earth, the crew had to return to the Odyssey. They hoped there was enough power to get them home. As the crew detached the Odyssey and floated back down to Earth, they could see the damage from the explosion. They had been lucky to survive.

On 17th April, the Apollo 13 crew splashed into the Pacific Ocean, near Samoa. The US Navy was waiting for the crew to land, picking up the exhausted men from the spacecraft by helicopter. Millions of people followed the Apollo 13 journey and watched on television as they landed. The whole world celebrated the crew's safe return, feeling joyous the astronauts had returned home.

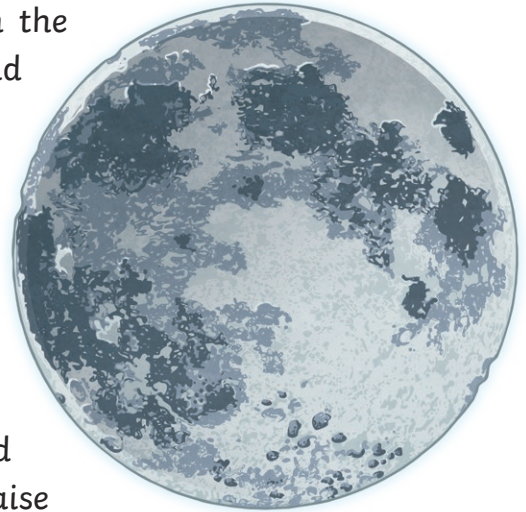
Apollo 13 is thought of as a 'successful failure' for NASA. Although the mission failed to reach the moon, the crew returned home safely, making it a huge success. Apollo 13 showed the world that, by working together, even when miles apart, any problem can be solved.

Apollo 13

The mission of NASA's Apollo 13 was to reach the moon. The mission failed, but it taught NASA and the world important lessons about team work and never giving up.

Blast-Off

On April 11th 1970, three astronauts climbed aboard the Apollo 13, blasting off from the Kennedy Space Centre in Florida, USA. The crew included Commander James Lovell and pilots Fred Haise and Jack Swigert. It was Haise and Swigert's first mission to the moon, whereas the



experienced Lovell had been once before.



The mission suffered bad luck from the beginning. One of the original pilots was replaced by Swigert just two days before blast-off. This was because the original pilot had been exposed to a virus. NASA decided it was too big a risk for a virus to go into space, so Swigert had only a couple of days to be ready for the mission.

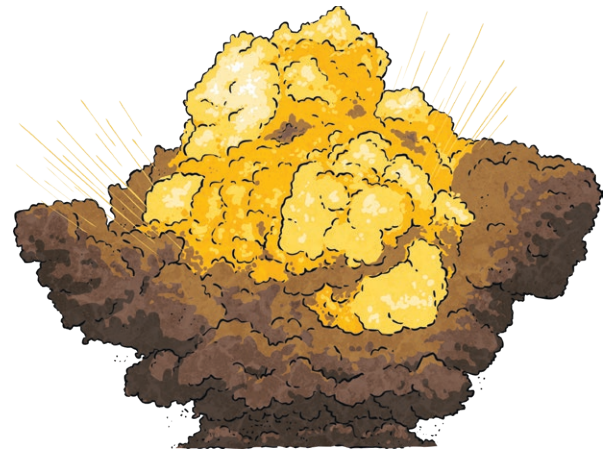
The Apollo 13 was made up of two different spacecraft, the Odyssey and the Aquarius. They were connected by a tunnel. Odyssey was the spacecraft with the crew's living area and the main controls. The Aquarius was smaller. It was designed for two crew members to land on the moon.

At first, the Apollo 13 mission was progressing perfectly. Their mission was to explore the surface of the moon by taking photographs and getting samples of the moon's surface. The crew were also going to film videos for television.

An Explosion

On the evening of 13th April, disaster hit the Apollo 13. An explosion rocked the spacecraft. Swigert reported the explosion to mission control in Houston,

exclaiming, "Houston, we've had a problem here." An oxygen tank had exploded and caused serious damage. From the window, the astronauts could see gas escaping into the atmosphere. Worryingly, this gas was oxygen. There is no oxygen in space so without the oxygen tanks, the crew could not survive.



The explosion changed Apollo 13's story from a research mission into a rescue mission. The crew were stranded in space with a damaged spacecraft. It would take an immense amount of teamwork and resilience to get the crew safely home.

The crew moved into Aquarius, which became a lifeboat for them. The Odyssey was shut down to try and conserve as much power as possible for the journey home to Earth.

To return home, the crew had to run the spacecraft for just enough time to direct it to Earth. The timing had been carefully calculated by both mission control and the crew. If they were even a few seconds wrong, Apollo 13 would miss the Earth by thousands of miles. Everyone was relieved when the plan worked.

Difficult Conditions Onboard

Life in space was very difficult for the crew. All power was turned off, except for essential systems. It was extremely cold and caused condensation. Water and food were strictly rationed, as some food became inedible with the cold. It was so cramped it was difficult for the crew to sleep. The astronauts were weakened by these conditions, even developing kidney infections. The crew were anxious, but felt supported by mission control, who were working hard to rescue them.

Soon there was another problem. Too much carbon dioxide had built up. The crew of Apollo 13 had to build a special filter using only the contents of the Aquarius. Over the radio, mission control helped the crew build the filter using plastic bags, cardboard and a sock to fix the problem.

To re-enter the Earth's atmosphere, the crew moved back into Odyssey. They hoped there was enough power. As the crew detached the Odyssey and floated

back down to Earth, they saw the damage from the explosion. They had been extremely fortunate to survive the damage.

Returning Home

On 17th April, the Apollo 13 crew splashed into the Pacific Ocean, near to Samoa. Millions of people around the world watched the Apollo 13's journey and saw the crew land on television. The world celebrated the crew's safe return.

Apollo 13 is regarded as a 'successful failure' for NASA. The mission failed to reach the moon, but the crew returned home safely. Apollo 13 showed the world that, by working together, even when miles apart, any problem can be solved.



Apollo 13 Questions

1. Where was the Apollo 13 launched from? Tick **one**.

- Kennedy Space Centre
- Houston Space Centre
- Washington Space Centre
- New York Space Centre

2. What were the names of the two spacecraft that made up the Apollo 13? Tick **two**.

- Scorpion
- Aquarius
- Odyssey
- Gemini

3. **Find** and **copy** one word that means to cry out in surprise.

4. What is mission control?

5. What did Jack Swigert say at the time of the explosion?

6. How do you think the crew might have felt when they saw oxygen escaping into space from their window? Explain your answer.

7. Mission control kept in radio contact with the Apollo 13 crew, even though they were worried about power levels. Why do you think this was?

8. Name one quality the astronauts needed to help them through the scary situation onboard the Apollo 13. Explain why the quality you chose would be helpful.

Apollo 13 Answers

1. Where was the Apollo 13 launched from? Tick **one**.

- Kennedy Space Centre**
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2. What were the names of the two spacecraft that made up the Apollo 13? Tick **two**.

- Scorpion
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- Odyssey**
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exclaiming

4. What is mission control?

People who work for NASA who look after the spacecraft from the Earth.

5. What did Jack Swigert say at the time of the explosion?

"Houston, we've had a problem here."

6. How do you think the crew might have felt when they saw oxygen escaping into space from their window? Explain your answer.

Pupil's own response, such as: I think they would have felt very scared because humans need oxygen to survive.

7. Mission control kept in radio contact with the Apollo 13 crew, even though they were worried about power levels. Why do you think this was?

Pupil's own response, such as: It was important for the crew to feel supported and not alone while in space. It was also important to allow mission control to help the crew with any problems that arose.

8. Name one quality the astronauts needed to help them through the scary situation onboard the Apollo 13. Explain why the quality you chose would be helpful.

Pupil's own response, such as: The astronauts would need to be calm and not panic so that they could think clearly.

Apollo 13 Questions

1. Where was the Apollo 13 launched from? Tick **one**.

- Kennedy Space Centre
- Houston Space Centre
- Washington Space Centre
- New York Space Centre

2. Which member of the Apollo 13 crew had already been to the moon? Tick **one**.

- Jack Swigert
- James Lovell
- Fred Haise

3. Why did NASA stop one of the original Apollo 13 pilots going into space?

4. **Find** and **copy** one word that means a serious accident.

5. What did Jack Swigert say at the time of the explosion?

6. How do you think the crew might have felt when they saw oxygen escaping into space from their window? Explain your answer.

7. Teamwork was very important between the Odyssey crew and mission control.

Do you agree with this statement? Explain your answer.

8. Millions of people watched the Apollo 13 splash land in the Pacific Ocean on television. Why do you think they were so interested in the Apollo 13 story? Explain your answer.

9. Describe **two** qualities you think the astronauts would have needed to help them through the scary situation onboard the Apollo 13.

Apollo 13 Answers

1. Where was the Apollo 13 launched from? Tick **one**.

- Kennedy Space Centre**
- Houston Space Centre
- Washington Space Centre
- New York Space Centre

2. Which member of the Apollo 13 crew had already been to the moon? Tick **one**.

- Jack Swigert
- James Lovell**
- Fred Haise

3. Why did NASA stop one of the original Apollo 13 pilots going into space?

He had been exposed to a virus and NASA couldn't risk the crew being ill in space.

4. Find and copy one word that means a serious accident.

Disaster

5. What did Jack Swigert say at the time of the explosion?

"Houston, we've had a problem here."

6. How do you think the crew might have felt when they saw oxygen escaping into space from their window? Explain your answer.

Pupil's own response, such as: I think they would have felt very scared because humans need oxygen to survive. There is no oxygen in space so the crew needed Apollo 13's oxygen tanks.

7. Teamwork was very important between the Odyssey crew and mission control.

Do you agree with this statement? Explain your answer.

Pupil's own response, such as: I agree because the Apollo 13 was stranded in space so they need mission control to help them solve their carbon dioxide problem. They also needed their support.

8. Millions of people watched the Apollo 13 splash land in the Pacific Ocean on television. Why do you think they were so interested in the Apollo 13 story? Explain your answer.

Pupil's own response, such as: It is an amazing story. People were interested in space travel and they wanted to make sure the crew got back home safely.

9. Describe two qualities you think the astronauts would have needed to help them through the scary situation onboard the Apollo 13.

Pupil's own response, such as: They need to be brave to face the challenges onboard. They need to be resilient, so they don't give up when things are difficult. They need to be calm, so they do not panic and can think clearly.

Apollo 13 Questions

1. Where was the Apollo 13 launched from? Tick **one**.

- Kennedy Space Centre
- Houston Space Centre
- Washington Space Centre
- New York Space Centre

2. Which members of the Apollo 13 crew had never been to the moon before? Tick **two**.

- Jack Swigert
- James Lovell
- Fred Haise

3. Why did the Apollo 13 mission start with bad luck?

4. Look at the section titled **An Explosion**. Find and copy one word that means to not give up and keep going.

5. What did Jack Swigert say at the time of the explosion?

6. How do you think the crew might have felt when they saw oxygen escaping into space from their window? Explain your answer.

7. Explain why the conditions onboard the Aquarius were very difficult for the crew.

8. Without mission control's teamwork, the crew of the Odyssey would never have made it home.

Do you agree with this statement? Explain your answer.

9. Millions of people watched the Odyssey splash land in the Pacific Ocean on television. Why do you think they were so interested in the Apollo 13 story? Explain your answer.

10. What qualities do you think the astronauts needed to help them through the scary situation during the Apollo 13 mission? Explain why the qualities you have chosen would be helpful.

Apollo 13 Answers

1. Where was the Apollo 13 launched from? Tick **one**.

- Kennedy Space Centre**
- Houston Space Centre
- Washington Space Centre
- New York Space Centre

2. Which members of the Apollo 13 crew had never been to the moon before? Tick **two**.

- Jack Swigert**
- James Lovell
- Fred Haise**

3. Why did the Apollo 13 mission start with bad luck?

One of the original pilots had been exposed to a virus and was replaced with only two days to go.

4. Look at the section titled **An Explosion**. Find and copy one word that means to not give up and keep going.

Resilience

5. What did Jack Swigert say at the time of the explosion?

“Houston, we’ve had a problem here.”

6. How do you think the crew might have felt when they saw oxygen escaping into space from their window? Explain your answer.

Pupil’s own response, such as: I think they would have felt very scared as humans need oxygen to breathe and survive. There is no oxygen in space and without the Apollo 13’s oxygen tanks, they would not survive.

7. Explain why the conditions onboard the Aquarius were very difficult for the crew.

Pupil's own response, such as: Most of the power had to be turned off so the spacecraft was very cold. It also caused condensation which could be dangerous to the electronics. The cold also made some of their food inedible.

8. **Without mission control's teamwork, the crew of the Odyssey would never have made it home.**

Do you agree with this statement? Explain your answer.

Pupil's own response, such as: The crew was dependent on mission control to help them get home. They also depended on mission control to help them fix their carbon dioxide problem by helping them build a new air filter. They also needed the support of mission control to stay calm.

9. Millions of people watched the Odyssey splash land in the Pacific Ocean on television. Why do you think they were so interested in the Apollo 13 story? Explain your answer.

Pupil's own response, such as: It is an amazing story. People were interested in space travel and they wanted to make sure the crew got back home safely.

10. What qualities do you think the astronauts needed to help them through the scary situation during the Apollo 13 mission? Explain why the qualities you have chosen would be helpful.

Pupil's own response, such as: The astronauts would need to be calm and not panic in order to fix their problems. They would need to be resilient and face their problems, working together to find a solution. They would also need to talk to each other and support each other.