🚀 Science in the Movies: Apollo 13 (1995)

Grade Level: 5–9
Topics: Engineering · Physics · Problem-Solving · Teamwork
Scene: NASA engineers work to fit a square filter into a round hole using limited materials.
Approx. Timestamp: 01:23:00 – 01:29:00

🌱 Before You Watch

1. Why is teamwork important during emergencies?
2. How do scientists and engineers solve problems under pressure?
3. What might go wrong on a space mission?

💭 Prediction Time!

What challenges might the astronauts face that science must solve?

🧪 A. Science Connections

1. What problem does the Apollo 13 crew face?
2. What scientific principle explains how limited oxygen affects the astronauts?
3. How do engineers use the **engineering design process** to solve the issue?
4. Why was creativity as important as technical skill in this situation?

📊 B. Data & Analysis

1. The crew needs to remove **CO_2** at a rate of 1 kg per hour. How much CO_2 must be filtered in 10 hours?
2. If the ship's power is reduced to 20% capacity, how should engineers prioritize energy use?
3. What data must ground control monitor to ensure safety?

🌎 C. Real-World Connection

1. How do real engineers test systems before human missions?
2. What lessons did NASA learn from Apollo 13?
3. What modern technologies were inspired by space exploration?

💡 D. Reflection

- What does *Apollo 13* teach about persistence and teamwork in science?
- How do limitations encourage innovation?
- ✨ *Complete:* "Science helps solve problems by..."

🎞️ Did You Know?

The Apollo 13 crew used **duct tape, plastic bags, and cardboard** to save their lives — a real example of engineering creativity.

💭 "Failure is not an option." — Gene Kranz

🎯 Extension

Design a **Problem-Solver's Challenge!**
Create a model or drawing showing how to solve a problem with only a few resources.
