

Super STEM Movies...Vol. 2

Apollo 13

PG, 1995, 140 min

Ideas for Projects: NASA, Apollo missions, the "Space Race," astronaut training, gravity, superstition, health, communication from space, problem solving, amps & volts, heat shields, entry angle, parachutes

Top Scenes: 1:19:36-1:21:00 & 1:27:07-1:32:53 The carbon dioxide problem, 2:02:40-2:11:24 "Our Finest Hour"

Big Question: What is the best way to handle problems? Can every problem be predicted & prevented?

Further Study: Read the book "Lost Moon" by Jim Lovell & research more "successful failures" in history

Astronaut Farmer

PG, 2006, 104 min

Ideas for Projects: Rocketry, scrapyards, space colonization, engineering, welding, weightlessness, fuel, teamwork, repurposing, rocket launches

Top Scenes: 19:21-21:08 The Farmer Space Program, 1:22:57-1:29:00 A successful launch

Big Question: Is it possible to build a working spacecraft at home? What skills would be necessary?

Further Study: Investigate the history of rocketry (especially from 1940-1969)

Hidden Figures

PG, 2016, 127 min

Ideas for Projects: Car starters, NASA, Sputnik, IBM, history of computers, engineering, wind tunnels, Mercury Seven, Fortran, Langley

Top Scenes: 58:33-59:59 Stepping up in the face of challenges, 1:16:30-1:19:00 The importance of questions

Big Question: What kinds of things can hold you back from success? What are the "moonshots" of this generation?

Further Study: Read the book Hidden Figures by Margot Lee Shetterly & study the history of NASA

The Martian

PG-13, 2015, 144 min

Ideas for Projects: Geology, navigation, extreme weather, angles, emergency preparedness, first aid, survival, biomonitors, problem solving, Sols, botany, gardening, fertilizer, water production, satellites, communication, hexadecimal, Pathfinder, temperature & pressure, Jet Propulsion Laboratory, astrodynamics, orbit, nutrition, chemistry, acceleration & deceleration

Top Scenes: 20:37-24:16 "Mars will come to fear my botany powers", 59:39-1:01:20 "I am the greatest botanist on this planet", 1:32:04-1:37:23 The resupply, 1:38:04-1:39:01 "Mark Watney, space pirate"

Big Question: What would be necessary to live on Mars? What obstacles are there to survival?

Further Study: Read the book The Martian by Andy Weir & learn about current and future Mars exploration beginning with NASA's Mars website <https://mars.nasa.gov>

October Sky

PG, 1999, 108 min

Ideas for Projects: Coal mining, Sputnik, Wernher von Braun, model rockets, welding, science fairs, recycling, lathes, rocket fuel, ignition system, goals & inspiration, altitude & trajectory, trigonometry

Top Scenes: 1:09:10-1:20:28 Finding the missing rocket, 1:35:08-1:39:20 Teamwork & one last rocket

Big Question: How does a rocket actually fly? Why rockets shaped like rockets?

Further Study: Read the book Rocket Boys by Homer H. Hickam Jr. & find a local science fair to enter.

Note: Movies are written, directed, & produced to tell a story and make money, not to be used an educational resource. Every movie should be previewed for content that may be inappropriate for your kids.

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